



INLAND EARTH SCIENCES

September 3, 2021

Project LCE-2021-002

Mr. Drew Dittman
Lake City Engineering
126 E. Poplar Avenue
Coeur d'Alene, ID 83814

SUBJECT: LEVEL 2 NUTRIENT PATHOGEN EVALUATION
Bayshore Estates Subdivision
Near NEC of W. Riverview Drive and N. Greensferry Road
Post Falls, Idaho

Dear Mr. Dittman:

Inland Earth Sciences Corporation (IES) is pleased to present Lake City Engineering (the "Client") this Level 2 Nutrient-Pathogen Evaluation (the "Report") for an approximate 28-acre land parcel (the "Property" or "Subject Property"). IES understands that the Property is intended to be divided into 57 lots of approximately 21,750 square feet each for development of one single-family residential dwelling per lot; a conceptual subdivision plan provided by Client is included as Attachment A. Each lot is proposed to be constructed with an individual septic system. IES has previously prepared a Level 1 Nutrient Pathogen Evaluation (NPE) for the Property per the Idaho Department of Environmental Quality (IDEQ) *Nutrient-Pathogen Evaluation Program for On-Site Wastewater Treatment Systems* guidance (May 6, 2002).

IES was requested by the Client to perform a Level 2 NPE for the Property per the relevant IDEQ guidance. IDEQ requires that proposed onsite wastewater treatment systems will not degrade groundwater or surface water quality beyond existing "background levels". IDEQ considers an increase of 1.0 milligrams per liter (mg/L) nitrate (as nitrogen) or less, predicted to occur at the compliance boundary, as demonstrating a negligible impact (IDEQ, 2002). For this NPE, the compliance boundary is the downgradient boundary of the overall subdivision. Preparation of this Report included the following tasks:

- Review of available geology, soils, and groundwater information to evaluate Property conditions.
- Install and sample two dedicated monitoring wells at the Property;
- Utilizing an existing production well located on the Property, perform aquifer testing to evaluate the Property's hydrogeologic characteristics;
- Assess the expected nitrogen load from the proposed subdivision by numerical modeling, and;
- Prepare this Report, which includes an opinion regarding the ability of the soil, subsoil and groundwater at the site to support proposed septic systems and the potential cumulative impacts of the septic systems on the subsurface at the downgradient boundary of the property.



SITE DESCRIPTION

Property Location

The Property is located south of Post Falls, Idaho, northeast of the intersection of W. Riverview Drive and N. Greensferry Road (Figure 1). The Property is situated within northwest quarter of the southwest quarter (NW $\frac{1}{4}$, SW $\frac{1}{4}$) and the southwest quarter of the northwest quarter (SW $\frac{1}{4}$, NW $\frac{1}{4}$) of Section 12, Township 50 North, Range 5 West, Boise Meridian (B.M.), Kootenai County, Idaho. The approximate geographic location of the Property's center is 47.692738°N, 116.912155°W (NAD83). The Property is identified as Kootenai County Parcel No. 50N05W-12-5500. The Property is roughly rectangular in shape and approximately 28.45 acres in size (Figure 2), with dimensions of approximately 1,500 feet north-south and 800 feet east-west.

Physical Setting

The Property is located outside the city limits of Post Falls, approximately 300 feet south of the Spokane River (Figure 2). The Property elevation is generally consistent at approximately 2,150 feet above mean sea level (Figure 1); the existing ground surface is flat to nearly flat with little to no slope. The Property is located at the confluence of Cedar Creek with the Spokane River. Cedar Creek is an ephemeral stream that drains south-to-north from Blossom Mountain, located approximately three miles southwest of the Property. The Spokane River and mountains south of the Property area form the southern boundary of the Rathdrum Prairie. The geomorphology of Property area appears to be that of alluvial fan originating from the Cedar Creek drainage.

The Property is currently undeveloped, it is classified by the Kootenai County Assessor as Rural Land (Type 31) with a Property Class Code of 512 – Rural Residential Tract. The Property is bounded by residential subdivision developments to the west, north, and east, and rural residential properties to the south (Figure 2).

The average total annual precipitation for the Property vicinity during the period 1895 to 2016 is approximately 25 inches per year according to the Western Regional Climate Center (<https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?id1956>).

Soils

Soils mapping for the Property and surrounding area is described in the Natural Resources Conservation Service (NRCS) 1981 *Soil Survey of Kootenai County Area, Idaho* and using the NRCS Service Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/>). The information provided by the custom soils resource report describes the Property being underlain by three soil types (Figure 5):

- Avonville fine gravelly silt loam, zero to seven percent slopes
- Avonville fine gravelly silt loam, seven to 20 percent slopes
- McGuire-Marble association, zero to seven percent slopes

The soils in the northern portion of the Property are mapped as Avondale soils, while the southern portion of the Property is mapped as McGuire-Marble association soils. The Avondale fine gravelly silt loam is described as consisting of a fine gravelly ashy silt loam from zero to 16 inches below ground surface (bgs), at 16 inches bgs the soil grades to a very gravelly silt loam, at 25 inches bgs the soil grades to an extremely gravelly sandy loam, and at 37 inches the soil grades to an extremely gravelly sand. The soil is well-drained with a low available water capacity (about 4.9 inches); the capacity of the most limiting layer



to transmit water (K_{sat}) is moderately high to high (0.57 to 2.00 inches per hour). The depth to any restrictive features is greater than 80 inches, with the depth to water table greater than 80 inches. The soil is classified in Hydrological Soil Group B; Group B soils have a moderate infiltration rate when thoroughly wet.

The McGuire-Marble association is described as consisting of slightly decomposed plant material at ground surface (zero-to-1-inch bgs), at one inch bgs a gravelly sandy loam is encountered, at nine inches bgs the soil grades to a very gravelly silt loam, at 23 inches bgs the soil grades to an extremely gravelly coarse sandy loam, and at 27 inches the soil grades to an extremely gravelly coarse sand. The soil is excessively drained with a low available water capacity (about 3.5 inches); the capacity of the most limiting layer to transmit water (K_{sat}) is high (2.00 to 6.00 inches per hour). The depth to any restrictive features is greater than 80 inches, with the depth to water table greater than 80 inches. The soil is classified in Hydrological Soil Group A; Group A soils have a rapid infiltration rate when thoroughly wet.

Geology

Geologic information for the Property and the surrounding area is obtained from the following documents:

- Lewis, R. *et al*, 2002, *Geologic Map of the Coeur d'Alene 30 × 60 Minute Quadrangle, Idaho*: Idaho Geologic Survey Geologic Map 33, Scale 1:100,000.
- Breckenridge, R. and Othburg, K., 1998, *Surficial Geologic Map of the Post Falls Quadrangle and Part of the Liberty Lake Quadrangle, Kootenai County, Idaho*: Idaho Geologic Survey Surficial Geologic Map 5, Scale 1:24,000.

The geology of the Property area is presented in Figure 3 and the surficial geology of the Property area is presented in Figure 4. Generally, geologic mapping by Lewis *et al* shows the Property to be surrounded and underlain by a basement of Cretaceous period Orthogneiss (**Kog**) consisting of grey, moderately to strongly foliated, moderately lineated, biotite- and hornblende-biotite tonalite, granodiorite, granite, and quartz diorite. The geology of the Property (Figure 3) is mapped as Pleistocene epoch distal gravel deposits (**Qdg**), consisting of moderately sorted, sandy flood gravels up to 180 feet thick. These deposits formed eddy bars at the mouths of the tributary valleys to the Rathdrum Prairie. Lower energy eddy flows deposited finer facies behind the main bar form. These deposits may be mantled by post-Glacial Lake Missoula flood lacustrine silt and alluvial deposits. This correlates with the surficial geology as depicted in Figure 4. Breckenridge and Othburg mapped the surficial deposits of the Property as the Pleistocene epoch Gravel of Riverview Drive (**grv**). They describe the deposit as sandy flood gravels on the southern margin of the Rathdrum Prairie deposited in mouths of tributary drainages in thickness ranging from 40 to 80 feet. These bedded low-flow regime deposits formed in an eddy bar environment.

Idaho Department of Water Resources (IDWR) Well Driller's Reports (WDRs) for water wells within the Property vicinity were researched for additional geologic information. IES searched the IDWR "Find A Well" geographic information system (GIS) database (<https://idwr.idaho.gov/wells/find-a-well.html>) for wells in the Property vicinity that could be accurately linked to a definitive physical location. Fifteen wells providing relevant geologic information were found meeting this criterion; these wells are depicted on Figure 6 and the WDRs are provided in Attachment B. Selected specifics for the 15 wells are presented in the following table:



IDWR Well ID	Owner	Total Depth (feet bgs)	Static Water Level (feet bgs)	Depth to Bedrock (feet bgs)
272528	SAMPSON	243	165	164
273615	MURPHY	740	100	134
273982	JORGENSON	500	158	165
274205	FITZGERALD	138	98	NR
274211	LINTON	163	20	51
274343	KNOX	200	132	NR
274445	GREENSFERRY W&SD	250	125	NR
275748	HUGHES	185	147	NR
275879	HOLMES	185	138	NR
276091	LEONARD	20	13	NR
276093	SCATES	235	172	225
276182	MURPHY	447	160	174
343781	GREENSFERRY W&SD	245	150	NR
348010	LAWRENCE	180	100	117
382092	HARLEY	220	155	NR
421374	LONG	300	140	130

IDWR Idaho Department of Water Resources
NR Not reported

bgs below ground surface

Hydrogeologic Characteristics

The hydrogeologic setting of the Property is within a hillside basin located at the perimeter of Rathdrum Prairie Aquifer (RPA). The Property is situated outside of the RPA boundary as defined by the U.S. Environmental Protection Agency (EPA); in this case the aquifer boundary is the Spokane River to the north. Clarkson and Buchanan investigated the hydrogeology of the Property area in their 1981 report to the IDEQ:

- Clarkson, D. and Buchanan, J., 1981, *A Reconnaissance of Hydrogeology and Groundwater Quality in Three Hillside Basins at the Perimeter of the Rathdrum Prairie Aquifer, Kootenai County, Idaho*, Idaho Division of Environmental Quality.

Hydrostratigraphy

Based on review of the Clarkson and Buchanan report, the geologic mapping, and the information contained in the available WDRs that are consistent with the Property setting (ignoring wells that are directly completed in gneissic bedrock), the Property appears to be underlain by a sequence of unconsolidated (1) sands overlying, (2) interbedded sands and clays overlying, (3) sands and gravels, overlying gneissic bedrock. This stratigraphy is consistent with that formed in an alluvial fan deposit. Figure 6 presents an interpretation of depth to bedrock for the Property area based on WDRs; Figure 7 presents an interpreted cross-section based on WDRs and geologic mapping for the Property area. The depth to bedrock in the property area is interpreted to be greater than 100 feet bgs in the southern portion



of the property area and is likely greater than 200 feet in the northern portion. The unconsolidated deposits in the Property area are generally described by the WRDs as:

- **Sands** – Up to 150 feet thick consisting of coarse to medium sands with gravels up to 2-inch minus. Water is not typically encountered in these sediments.
- **Interbedded sands and clays** – Up to 50 feet thick consisting of medium to fine sands interbedded with blue and brown clay. Sand interbeds may contain water.
- **Sands and gravels** – Greater than 100 feet thick consisting of coarse sands and gravels up to 6-inch minus. Water is encountered in these sediments.

Groundwater Depth and Hydraulic Gradient

Groundwater in the unconsolidated deposits of the Property area is first encountered at depths greater than 150 feet. Wells are often completed at depths much greater, with static water levels higher than the completion depth indicating that an upward hydraulic gradient is present in the Property area. The upward gradient indicates that static water levels measured in wells may represent the groundwater potentiometric surface and not the actual water table in the Property area.

The Spokane River in the Property area is a losing reach, discharging water from the river to the aquifer. However, it appears that the river is “sealed” from the aquifer by fine-grained sediments along the channel perimeter, preventing infiltration of surface water to the aquifer in this area. This is inferred from the lack of saturation in the upper sands that were encountered in wells drilled near the river (wells 274343, 274455, and 343781).

The hydraulic gradient of the groundwater in the Property area was investigated by Clarkson and Buchanan; they inferred a west-southwest to east-northeast gradient of approximately 0.08 feet per foot (ft/ft) across the Property area at a depth of approximately 100 to 150 feet bgs. However, as discussed previously this gradient may be based on the measured potentiometric surface and not the actual water table in the area. Given the location of gneissic bedrock to the east of the Property, the actual groundwater flow path driven by this gradient is potentially limited. Examination of WDRs for wells located in the Property vicinity but situated north of the Spokane River implies an estimated general gradient from the Property toward the north at approximately 0.01 ft/ft. Based on the reviewed literature and information, a gradient ranging from 0.01 to 0.1 ft/ft is expected for the Property, with a general flow direction from south to north.

Hydraulic Conductivity

Clarkson and Buchanan did not directly measure or estimate the hydraulic conductivity of the area sediments in their investigation; they provide estimates of hydraulic conductivities derived from other sources based on material facies. The estimate of hydraulic conductivity provided by Clarkson and Buchanan for silty sand and gravel is 60 to 200 feet per day.

SITE INVESTIGATION

As the Property area is outside the RPA boundary, values for sediments derived as part of RPA investigations are not considered valid for purposes of the nutrient-pathogen evaluation. One well was present in the northern portion of the Site; IDWR Well ID 275748 (depicted on Figure 6, WDR is included in Appendix B). This well, known as the “Hughes Well” was drilled in March 1980 by Aqua Drilling of Hayden, Idaho. The 8-inch diameter well was installed to a depth of 185 feet bgs. Sands and gravels



were logged from ground surface to a depth of 165 feet bgs. A “wet zone” was encountered from 188 to 147 feet bgs; water was not present from 147 to 165 feet bgs. A “blue clay” was encountered from 165 to 167 feet bgs. Sands and gravels were logged from 167 to 178 feet bgs, with coarse gravels logged from 178 to 185 feet bgs. Water was present at 167 feet bgs. Intended to serve as a public water supply, the well was installed with 8-inch diameter stainless steel screen set from 170 to 185 feet bgs (0.080-inch slot from 170 to 180 feet bgs, 0.060-inch slot from 180 to 185 feet bgs). Static water level was recorded at 147 feet bgs. Anecdotal information suggested that the well was capable of up to 300 gallons per minute (gpm) of sustained production. The static water level was measured on April 2, 2012 at a depth of 123 feet bgs. With the indication that the Hughes well could serve as the pumping well for an aquifer test at the Property, two monitoring wells were installed in the near the Hughes Well to gather lithologic and hydrogeologic information for the Property and to serve as observation wells for an aquifer pumping test.

Monitoring Well Installation

Two borings were drilled and completed as monitoring wells in accordance with Idaho Administrative Procedure Act (IDAPA) 37.03.09 - *Well Construction Standards Rules* and generally-accepted environmental standards relevant to the drilling and installation procedures used at the Property. Anderson Environmental Contracting (AEC) of Kelso, Washington was subcontracted to drill and install the monitoring wells. Drilling activities began on April 13 and concluded on April 16, 2021. Borings were drilled and wells installed using a Terrasonic TSi 150CC Sonic Drill Rig. Boring and well installation logs are presented in Appendix C; selected construction details for each monitoring well are as follows:

Well	Total Depth (ft bgs)	Construction	Screen Length (ft bgs)	Depth to Water (ft bgs)	Static Water Level (ft bgs)
A	185	2-inch diameter flush-coupled PVC pipe with 0.020-inch slotted PVC pipe screen	15	170	127.25
B	180	2-inch diameter flush-coupled PVC pipe with 0.020-inch slotted PVC pipe screen	15	160	124.4

ft bgs – feet below ground surface

PVC – Polyvinyl Chloride

The boring locations were selected relative to the Hughes Well with the purpose of providing observation wells for aquifer testing (Figure 8). Well A was situated 100 feet to the east-southeast of the Hughes Well and Well B was situated 50 feet to the south-southwest of the Hughes Well. The compact design of the pumping and observation network was intended to ensure that functional data was generated during the aquifer testing if the aquifer properties were such that achievable pumping rates were insufficient to generate drawdown over an extended distance.

Borings were advanced using roto sonic techniques. The dual wall roto sonic tooling drilled a 6-inch diameter boring, advancing temporary steel casing over the length of the boring. A 4-inch diameter inner barrel provided continuous soil core sampling over the length of the boring, maintain the borehole open. Drill cuttings were logged by Idaho Professional Geologist Kevin M. Freeman (License No. 958). Soils were described and classified using ASTM Method D2487 *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)* and ASTM Method D2488 *Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)*. Soil descriptions included color, grain size, sorting, qualitative moisture content, visual evidence of oxidation, various layers and conditions, and other notable characteristics. Boreholes were drilled until a water-bearing unit with hydraulic properties consistent with those present or documented in the Hughes Well was encountered.



This was determined by the geologist based on water encountered or observed in the drill cuttings and the corresponding depth to water observed in the drill casing. The well was then installed such that the screen was open to the upper 15 feet of the relevant water-bearing unit.

Monitoring wells were constructed of 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) flush-threaded pipe. Well screens consist of a 15-foot section of 2-inch diameter, Schedule 40 PVC slotted pipe with 0.020-inch openings (20-slot). A 0.5-foot, 2-inch, Schedule 40 PVC, matching thread sump is attached at the base of the well screen. Stainless steel centralizers were installed above and below the well screen to maintain a minimum annular space of two inches between the borehole wall and the well casing. The temporary steel casing was removed concurrent with well installation. Filter packs extend from the bottom of the borehole to three feet above the top of the screens. A filter pack of 12/20 silica sand was placed around the screen. The borehole annular space above the filter pack was sealed with bentonite grout placed via tremie pipe to within approximately three feet bgs in Well A and five feet bgs in Well B. Three-eighths (3/8) inch bentonite chips were added from five feet to three feet bgs in Well B. The bentonite chips were hydrated after placement. At approximately three feet below the ground surface, a steel riser casing was placed over the wells and secured in place using concrete. Riser casings extend above ground approximately 2.5 feet and are completed with protective steel surface casings and a cement surface pad. Well A was assigned IDWR Well Tag No. D0088202 and IDWR Well ID No. 463755. Well B was assigned IDWR Well Tag No. D0088203 and IDWR Well ID No. 463756.

The wells were developed on April 28, 2021 via 2-inch submersible pump. The pump was lowered to the bottom of the well screen and the well was pumped at a rate of approximately two gpm until the water was free of sand with minimal turbidity. The pump was then raised 1-foot and the process was repeated over the length of the well screen.

Well Sampling

Well sampling was conducted on April 28, 2021 following well development. Samples were collected via submersible pump. The pump intake was placed five feet below the top of the well screen and the well was purged for 15 minutes at a rate of two gpm, purging approximately 30 gallons of water prior to sampling. Samples were collected from both wells and analyzed for nitrate as nitrogen (NO₃-N) by EPA Method 300.0. Sample analysis was completed by Eurofins TestAmerica of Spokane, Washington. The Certified Analytical Report is included as Appendix D. Nitrate was detected in Well A at a concentration of 0.70 milligrams per liter (mg/L) and in Well B at a concentration of 0.35 mg/L.

Analysis

Lithologic information obtained from the borings depicts the following stratigraphy:

- A series of interbedded sand and gravel layers from near-surface to 150/160 feet bgs. The sand layers are fine to coarse grained varying on the layer; fine gravels may be present. The gravel layers are typically sandy; gravels are fine to coarse and subrounded.
- A two to three-foot greenish-grey clay/silt layer present at 150/160 feet bgs. The layer has low to medium plasticity, is medium stiff to stiff, and has medium toughness.
- A series of interbedded sand and silt layers from 150/160 feet bgs to 165/170 feet bgs. The sands show definitive grading sequences and are fine to coarse grained.



- Clayey gravels from 165/170 feet to explored depth. The gravels are coarse and rounded to subrounded.

A water-bearing zone is present in Well B from 122 to 135 feet bgs. This is generally consistent with the water-bearing zone reported in the Hughes Well from 118 to 147 feet bgs. This water-bearing zone was not encountered in Well A. Additionally, the water-bearing zone was contained between an upper and lower clay layer. This water-bearing zone appears to be laterally discontinuous and perched above the water-bearing zone located at greater depth. Water levels in Well A, Well B, and the Hughes Well all indicate a confined water-bearing zone is present beginning at 165 feet bgs, with approximately 35 feet of hydraulic head above the confining layer. The wells were surveyed by Lake City Engineering; a complete set of water level elevations were collected from the wells on May 11, 2021:

Well	Measuring Point Elevation (feet AMSL)	Depth to Water (feet bmp)	Potentiometric Surface Elevation (feet AMSL)
HUGHES	2128.475	125.23	2006.27
A	2132.041	130.71	2006.38
B	2128.398	127.61	2006.47

AMSL – above mean sea level

bmp – below measuring point

Based on these water levels, a slight general south-to-north gradient is present in the northern portion of the Property area. Nitrate concentrations of less than 1 mg/L were detected in water samples collected from the aquifer.

AQUIFER TESTING

Procedure

IES installed Solinist *Levelogger 5* (“Levelogger”) M5 water level data loggers in Well A and B (the “Observation Wells”) on April 22, 2021. The selected Leveloggers are designed for up to 15 feet of submergence and are capable of a typical water level accuracy of ± 0.01 feet (ft). Both loggers were equipped with direct-reading cables, allowing for measurements to be observed without removing the loggers from the wells. As the selected loggers was unvented, a Solinist *Barologger 5* (“Barologger”) M1.5 barometric logger was placed at the Property for barometric monitoring and later correction of the recorded water levels.

Background water level monitoring began in the Observation Wells on April 22, 2021 at 15:30 and continued until May 11, 2021 at 09:30. The collected water level and associated barometric information was downloaded from the loggers and a barometric correction was applied to the water levels using the Solinist Levelogger 5 Series software. The background water levels are depicted on Figures 9 and 10. Both graphs depict repeated, cyclic water level changes of approximately 0.4 to 0.5 feet. The nearest potential cyclic influences are the two Greensferry Water & Sewer District public supply wells (the “GWD Wells”). The GWD wells are located approximately 450 and 500 feet from Well A and 500 and 550 feet from Well B (Figure 8).

United Crown Pump & Drilling (United) of Hayden, Idaho installed a 15 horsepower (HP) 6-inch submersible pump in the Hughes Well (the “Pumping Well”) on May 10, 2021. The pump was set at 165 feet bgs, with the pump intake located at 170 feet bgs. A one inch diameter drop tube was installed from the well head to 164 feet bgs to allow for unimpeded installation of a pressure transducer in the well.



IES installed Solinst *Levellogger 5* (“Levellogger”) M10 water level data logger in the Pumping Well on May 11, 2021. The selected Levellogger is designed for up to 30 feet of submergence and is capable of a typical water level accuracy of ± 0.01 feet (ft). The logger was equipped with a direct-reading cable, allowing for measurements to be observed without removing the logger from the Pumping Well. The Levellogger was installed in the drop tube to a depth of 155 feet bgs. The static water level (SWL) in the Pumping Well was measured at 127 feet bgs prior to installation, providing 28 feet of water head in the Pumping Well prior to testing. As the selected logger was not vented, barometric monitoring and correction of the recorded water levels were required prior to analysis.

A capacity step test of the Pumping Well was performed on May 11, 2021. The purpose of this test was to:

- Determine a sustainable pumping rate for the constant-rate drawdown test;
- Evaluate the hydraulics of the Pumping Well, especially the well efficiency and any well loss, and;
- Evaluate the performance of the pumping and monitoring equipment prior to commencing the constant-rate drawdown test.

The discharge pipe was fitted with a 2-inch diameter McCrometer totalizing flow meter. Based on the step capacity test, a discharge rate of 200 gpm was determined to be constantly sustainable without causing cavitation in the Pumping Well. The Pumping Well was allowed to recover for a period of 12 hours prior to commencing the constant rate drawdown test.

The constant-rate drawdown test was performed beginning at 16:30 on May 12, 2021. The discharge rate was fixed at 200 gpm, as based on the prior day’s testing. Measurement of the discharge rate by the flow meter recorded the rate consistently at 200 gpm \pm 5 gpm. The pumping and observation loggers were set to record head measurement in the wells at one second intervals over the duration of the test. The barometric logger was set to record barometric pressure at five-minute intervals over the duration of the test. The test proceeded without incident for three hours; the water levels in the Observation Wells was constant beginning (no longer responding to pumping) at approximately 17:30. The pump was shut off at 19:30 on May 12th. The recovery (post-pumping) phase of the test proceeded from 19:30 to 22:30; head measurements were collected at one second intervals for the duration of the recovery phase. The measurement equipment was removed from the Well on afternoon of May 13th. Data was retrieved from both the Levelloggers and Barologger following completion of the test.

Analysis

The data generated by the constant-rate drawdown recovery test was evaluated using both visual and analytical methods. The complete time versus drawdown test data sets for Observation Wells A and B are depicted in Figures 10 and 11, respectively. A constant discharge rate of 200 gpm in the Pumping Well produced a maximum drawdown of approximately 0.2 feet in both Observation Wells. This drawdown was accomplished within nine minutes of the start of the test. However, visual inspection of the complete test indicates interference from the GWD Wells is present during the test. This interference is the expected cause of stabilization of the drawdown in the Observation Wells at approximately one hour into the constant rate pumping test. At approximately 17:37, the effect of pumping in the GWD Wells appears to “overprint” the effects of the ongoing test. The constant rate drawdown test was concluded at 19:30, and a more “typical” recovery curve is constructed by the data. However, at approximately 20:45, it appears that GWD pumping ceases and the recovery related to the GWD Wells overprints the test. Visual analysis



indicates that the Observation Wells recovery data can be evaluated to determine an approximate transmissivity for the aquifer.

The recovery data was analyzed using methods presented in Kasenow, M., 1996, *Recovery Analysis: New Methods and a Computer Program in Well Hydraulics* (Water Resources Publications, 304 p). The results of the analysis are depicted in Figures 12 and 13. The time-recovery graph method was selected to determine aquifer transmissivity (T) from the observation well recovery data. were calculated for both well's recovery data sets. The residual drawdown and t/t' ratio data were projected onto a Cooper-Jacob semi-logarithmic time-drawdown pump test graph, and a straight-line slope was analyzed. Additionally, the equation approximation method was used for both data sets to determine transmissivity by the following formula:

$$T = \frac{264Q}{s'} \log \left[\frac{t}{t'} \right]$$

Where:

- T = Transmissivity of the aquifer in gallons per day per foot (gpd/ft)
- Q = Pumping discharge rate in gallons per minute (gpm)
- s' = Residual drawdown caused by pumping in feet (ft)
- t = Time since pump test started in minutes
- t' = Time since pumping stopped in minutes

Evaluation of the recovery data for both Observation Wells using the equation approximation method indicated two distinct data groups: an "early-time" recovery data set and a "late-time" data set. The "late-time" data set from 980 to 100 t/t' (one to 19 minutes of the recovery period) provided the most consistent semi-log data plot and was deemed to be the most valid data set for the test. The analysis of this "late-time" data set for Observation Wells A and B using the equation approximation method calculated an average transmissivity of the aquifer of 19,700 feet squared per day (ft²/d) in Well A and 20,500 ft²/d in Well B, yielding an approximate average transmissivity of 20,000 ft²/d for the aquifer.

This analysis does assume that the proximity of the Observation Wells to the Pumping Well allows the recovery effect to dominate, for a brief period, the effect of the GWD Wells. Additionally, analysis by this methodology does not consider partial-penetration well effects on the confined aquifer caused by the Pumping Well. Given that the screen length of the Pumping Well is 15 feet and the likely aquifer thickness in the Property area is 100 feet or greater, the yield of the well is likely reduced, reducing the effect on the Observation Wells. Considering these conditions and effects, it is expected that the transmissivity calculated and presented for the Property area is less than the actual aquifer transmissivity.

NUMERICAL TRANSPORT AND FATE MODELING

The fate and transport and fate of septic effluent, specifically nitrate, related to the proposed 57 drainfields was evaluated by utilizing the three-dimensional finite difference groundwater flow model *Visual MODFLOW Flex 7.0* ("Flex 7"), produced by Waterloo Hydrogeologic (2021). Flex 7 contains the MODFLOW-2005 numerical modeling engine for flow modeling and the MT3DMS engine for contaminant modeling. The intent of this modeling effort was to simulate the groundwater flow and to predict nitrate concentrations exiting the Property.



Hydrogeological Conceptual Model

The hydrogeological conceptual model (HCM) for the Property area is presented in Figure 15. The HCM is based on information presented in the Site Description, Site Investigation, and Aquifer Testing sections of this report. The HCM consists of: (1) unsaturated interbedded layers of sand and gravel extending from ground surface to approximately 155 feet bgs, (2) underlain by a dry, low permeability silt/clay layer up to two feet thick, (3) underlain by moist-to-wet interbedded sand and silt layers extending from the silt/clay layer to approximately 165 feet bgs, (4) underlain by a saturated clayey gravel. The lithological units below the silt/clay layer are under confined conditions. The transmissivity of the confined unit, specifically the clayey gravel aquifer, is conservatively measured at 200 ft^2/d . The hydraulic gradient of the confined aquifer is expected to range from 0.1 to 0.01 ft/ft , with a general south-to-north flow direction.

Numerical Model

Groundwater modeling assumes steady state conditions. Flow enters the model domain from upgradient, surficial recharge from precipitation, and infiltration from the drain fields. The model approximates the dispersion of nitrate in the underlying aquifer due to the flux of recharge from the drain fields.

Review of the HGM suggests a three layer scenario (unsaturated layer, confining layer, and confined layer). However, inclusion of a confining layer is problematic, as no information is available to effectively model a leakage rate for the layer. It is likely that including a confining (low K_v) layer in the model would retard movement of the effluent to the aquifer. The purpose of the nutrient-pathogen evaluation is to analyze potential impacts to the underlying aquifer from the proposed effluent disposal system for the development. In order to provide an estimate of the greatest possible impact to the aquifer from septic infiltration related to the proposed development, it is appropriate to eliminate the confining layer and model the hydrogeologic system as a single layer, unconfined system. This model construction will evaluate impacts to the underlying aquifer under a scenario that allows for optimum transport of effluent to the aquifer.

The selected model construction is presented in Figure 15. A model size of approximately 1,600 feet north-south and 900 feet east-west was selected to model the Property. The single-layer model was constructed with grid of 80 rows and 40 columns, creating a horizontal grid spacing of 20 feet and a vertical grid spacing of 22 feet. This horizontal and vertical grid spacing yields a grid surface area of approximately 400 square feet. This surface area was designed to approximate the typical drainfield size required for a Design Group A soil type receiving a wastewater flow of 300 gallons per day (gpd).

Constant head boundaries were set at the southern and northern edges of the grid (Rows 1 and 80). The east and west edges were left open to flow. The constant head boundaries were used to establish depth to water and hydraulic gradient. Because the confining layer is neglected, the depth to water is set to the base of the confining layer at the northern edge of the Property, approximately 170 feet bgs. As a result, Row 1 was assigned a constant head of 130 feet above the base of the model. Using a 0.02 ft/ft gradient, the depth to water at the southern edge of the Property was calculated to be approximately 125 feet bgs. Accordingly, Row 80 was assigned a constant head of 175 feet above the base of the model.

Recharge was included in the model given the size of the Property (28 acres). Recharge was uniformly distributed over the entire layer at a rate of 10 inches per year (in/yr). The value was obtained from Hsieh, P.A., Barber, M.E., Contor, B.A., Hossain, Md. A., Johnson, G.S., Jones, J.L., and Wylie, A.H., 2007, *Ground-water flow model for the Spokane Valley-Rathdrum Prairie Aquifer, Spokane County, Washington, and Bonner and Kootenai Counties, Idaho*: U.S. Geological Survey Scientific Investigations



Report 2007-5044. The value represents the average recharge flux calculated for the Idaho side of the USGS model. The recharge flux accounts for both permeable and impermeable surfaces.

The drainfields were modeled as wells. The wells were designed five feet deep with a screen interval extending from 4 to 5 feet; this was intended to model a drainfield constructed at a depth of four to five feet bgs over an area of 400 square feet. The wells injected 300 gpd of effluent with a concentration of 45 mg/L of nitrate, representing septic effluent with no pretreatment. The wells were located at unique nodes within the grid, the locations were designed to place one well node (drainfeild) within each of the 57 parcels as currently planned.

A summary of the selected model parameter values is presented as follows:

Model Parameters	Selected Value	Rational/Source
Transmissivity (T)	20,000 ft ² /d	Field Aquifer Test
Aquifer Thickness (b)	100 ft	Well Drillers Logs and geologic mapping
Horizontal Hydraulic Conductivity (K _H = K _x and K _y)	200 ft/d	T/b
Vertical Hydraulic Conductivity (K _V = K _z)	20 ft/d	K _H × 0.1
Porosity (n)	0.3	Typical value for sand and gravel materials
Effective Porosity (n _e)	0.3	IDEQ Nutrient-Pathogen Evaluation Guide
Specific Yield (S _Y)	0.3	S _Y = n _e
Specific Storage (S _s)	1×10 ⁻⁵ /ft	Typical value for granular materials
Dispersivity Horizontal Longitudinal (α _H) Vertical Longitudinal (α _V)	20 ft 2 ft	IDEQ NPE Manual suggested value α _V = α _H × 0.1
Recharge	10 in/yr	Value for Idaho per USGS SIR 2007-5044
Wastewater flow per drainfield	300 gpd	IDEQ Nutrient-Pathogen Evaluation Guide
Nitrate concentration in effluent	45 mg/L	IDEQ Nutrient-Pathogen Evaluation Guide

The model was run assuming steady state conditions using the USGS MODFLOW 2005 from WH flow engine solver. The conjugate gradient solver was set to a maximum of 50 and 25 outer and inner iterations, respectively. The head change criterion for convergence was set at 0.01 and the residual criterion for convergence was set at 0.01. Damping factor for outer iteration was set at 1 and the damping factor for transient stress period was set at one. The relaxation parameter was set to one.

In the MT3DMS run module, simulations were performed using the Upstream Finite Difference advection method. No sorption or kinetic reactions were simulated. The courant number was set to 0.75 and the minimum saturated thickness was set to 0.01. The simulation times was set to 3,650 days (10 years) with intermediate output times of 365 days. The model concentrations stabilized by year five.



Model Results

The modeled results are presented in Figure 16. Using the parameters described above, the results of the groundwater numerical model predicted an average nitrate concentration of 0.14 mg/L at the downgradient (compliance) boundary under a scenario of 57 drainfields infiltrating 300 gpd at a concentration of 45 mg/L of nitrate (no pretreatment). Further, predicted concentrations remain stable out to 3,650 days. Stabilized values of predicted nitrate concentrations are below 1 mg/L, thus demonstrating a negligible impact to water quality at the compliance boundary.

OPINION

The proposed Bayshore Estates Subdivision consists of 57 lots on approximately 28 acres. Individual septic systems are proposed for each of the lots. The aggregate expected effluent from these individual systems is approximately 17,100 gpd. The sediments appear to be sufficiently deep enough allowing for adequate dispersion of this septic effluent volume. Modeled transport and fate of the septic effluent shows no impacts to the groundwater of surrounding properties in excess of State degradation limits. Under the conditions modeled in this report, the predicted average downgradient nitrate concentration does not exceed the 1.0 mg/L increase criteria.

LIMITATIONS

IES performs our services in accordance with the generally accepted standard of care ordinarily exercised by members of the profession practicing in the same geographic region under similar conditions at the same time. No warranty, either express or implied, is offered, made, or intended.

Our services are intended to provide a source of professional advice, opinions, and recommendations. Our professional opinions and recommendations are based on limited observations and information, and may depend on, and be qualified by, information gathered previously by others. Our opinions or recommendations may change as new data become available during additional assessment, investigation, or development. Property activities and governmental regulations beyond our control could change at any time after the completion of our site work. Therefore, the findings, conclusions, opinions and/or recommendations presented in the Report are valid only as of the date of the observations or information upon which they are based.

Even the most rigorous of professional assessments may fail to identify all existing conditions. Our services are limited to those items specifically identified in the Report; issues not specifically addressed in the Report were not included in our services. Our services may include the application of judgment to scientific principles; to that extent, certain results of our work product may be based on subjective professional interpretation.



CLOSING

IES appreciates the opportunity to provide Lake City Engineering our services. Should you have any questions regarding the information contained in the Report, please contact the undersigned.

Very Truly Yours,

INLAND EARTH SCIENCES CORPORATION



Kevin M. Freeman, PG
Idaho Professional Geologist No. 958
Principal Geologist
kfreeman@inlandearth.com | (509) 981-4747 Mobile

FIGURES

Figure 1 – Location Map
Figure 2 – Vicinity Map
Figure 3 – Geology Map
Figure 4 – Surficial Geology Map
Figure 5 – Soils Map
Figure 6 – Wells and Bedrock Topography
Figure 7 – Cross-Section A-A'
Figure 8 – Site Plan and Well Locations
Figure 9 – Well A Background Monitoring
Figure 10 – Well B Background Monitoring
Figure 11 – Well A Drawdown/Recovery Test
Figure 12 – Well B Drawdown/Recovery Test
Figure 13 – Well A Recovery Analysis
Figure 14 – Well B Recovery Analysis
Figure 15 – Site Conceptual Models
Figure 16

ATTACHMENTS

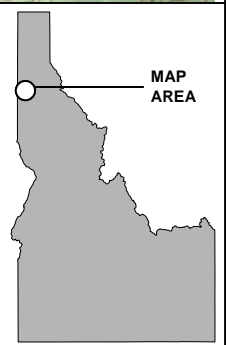
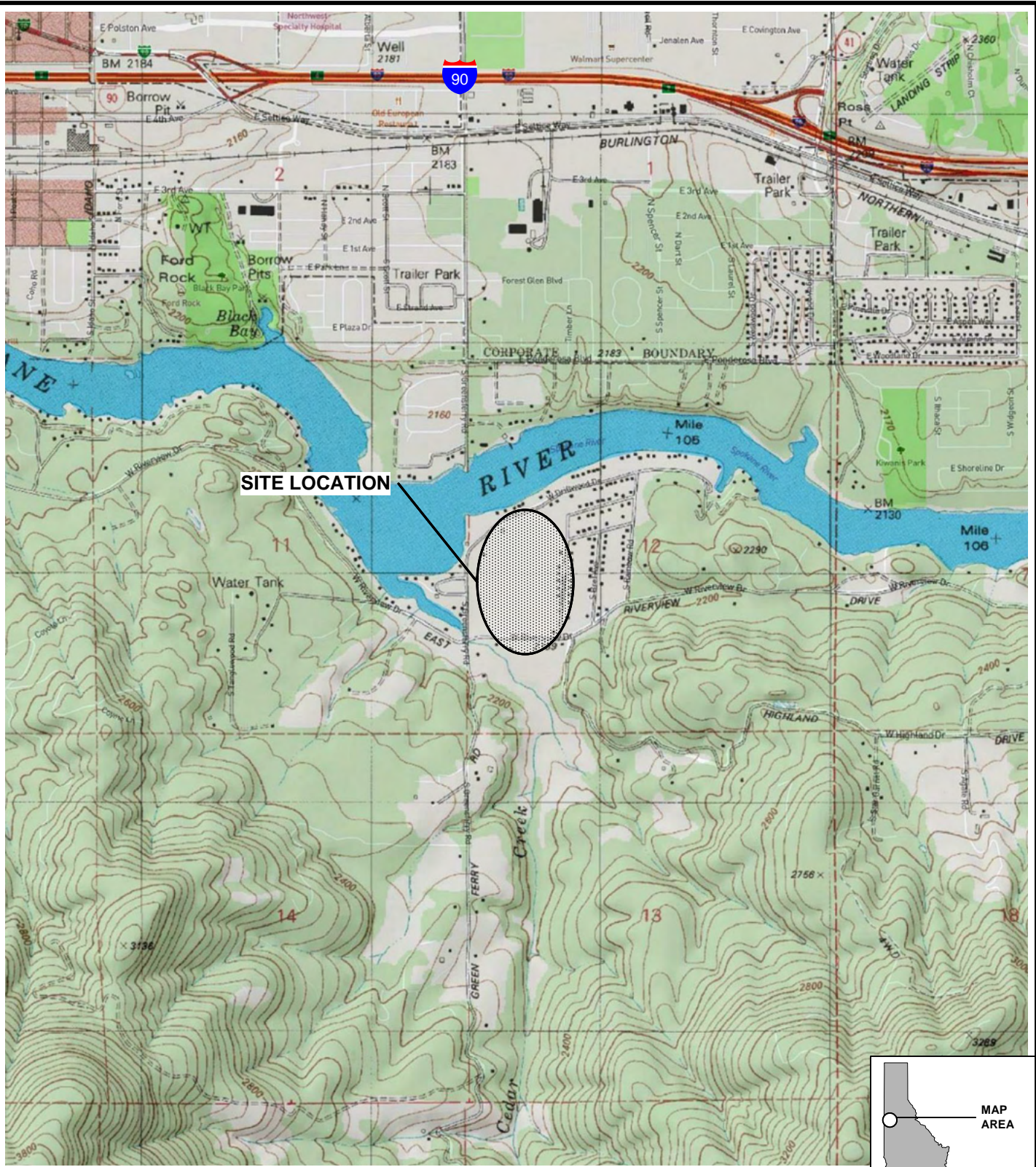
Attachment A – Bayshore Estates Subdivision Conceptual Plat
Attachment B – IDWR Well Driller Reports
Attachment C – Monitoring Well Logs
Attachment D – Certified Analytical Report



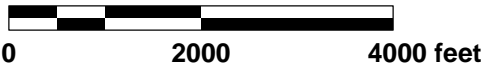
FIGURES

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SCALE 1 : 24,000



Source: USGS Post Falls, Idaho 7.5 Minute Series Quadrangle 1981

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LOCATION MAP
LEVEL 2 NURTIENT-PATHOGEN EVALUATION
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LAKE CITY ENGINEERING
POST FALLS, IDAHO

**FIGURE
1**

\\Projects\LCE\2021\002\Figure 1.vsd

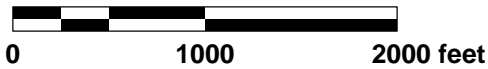
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Base Source: USDA NAIP Orthophoto; Post Falls NE, ID; 47116-F8-TF-012, 2017, 1:12,000; 47.692728° N, 116.912141° W, NAD83

SCALE 1 : 12,000



\\Projects\LCE\2021\002\Figure 2.vsd

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VICINITY MAP
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POST FALLS, IDAHO

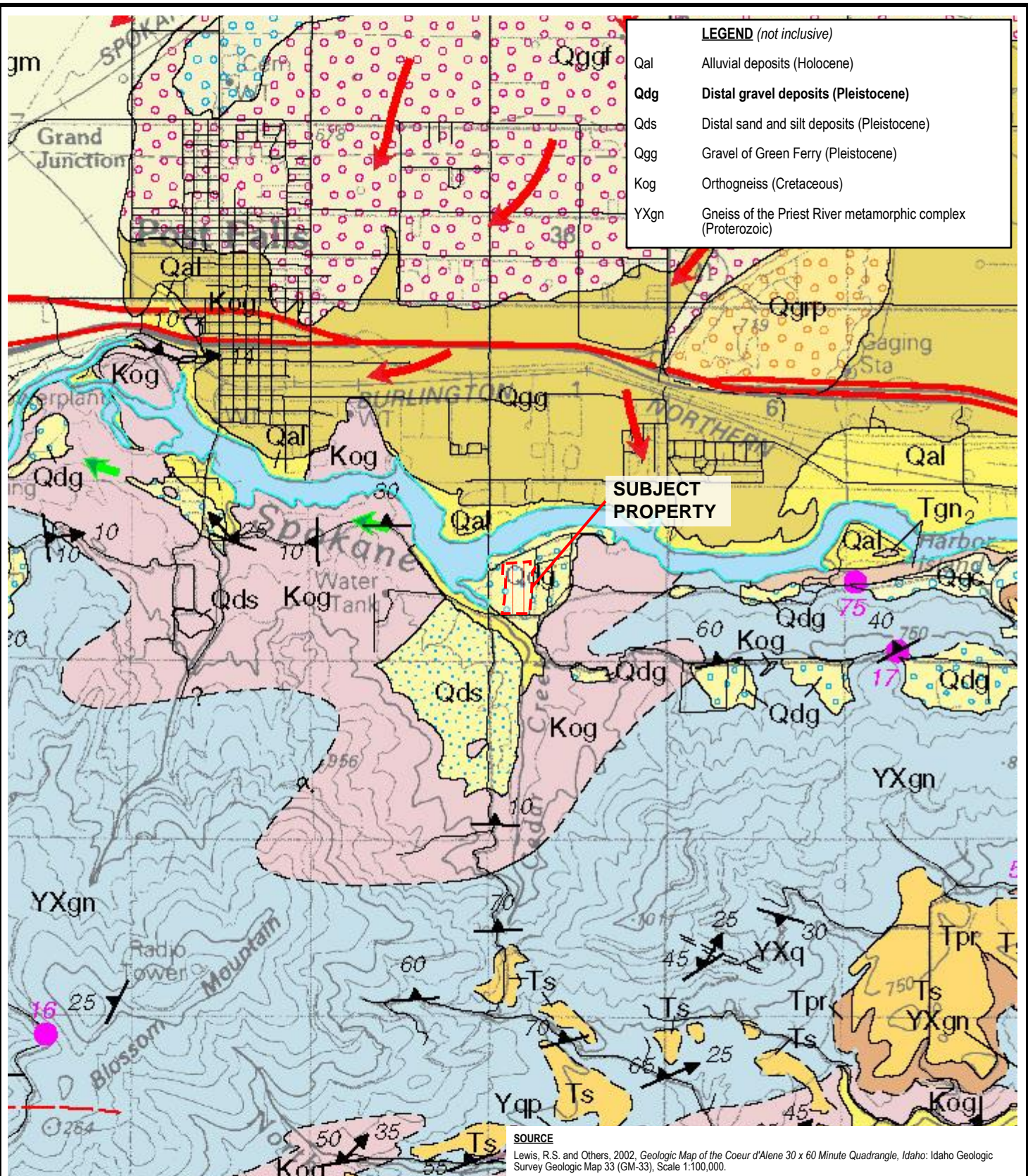
FIGURE

2

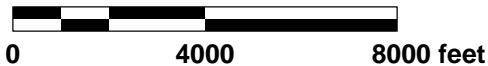
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Project: LCE2021002\Figure 3.vsd



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GEOLOGY MAP
 LEVEL 2 NUTRIENT-PATHOGEN EVALUATION
 BAYSHORE ESTATES
 LAKE CITY ENGINEERING
 POST FALLS, IDAHO

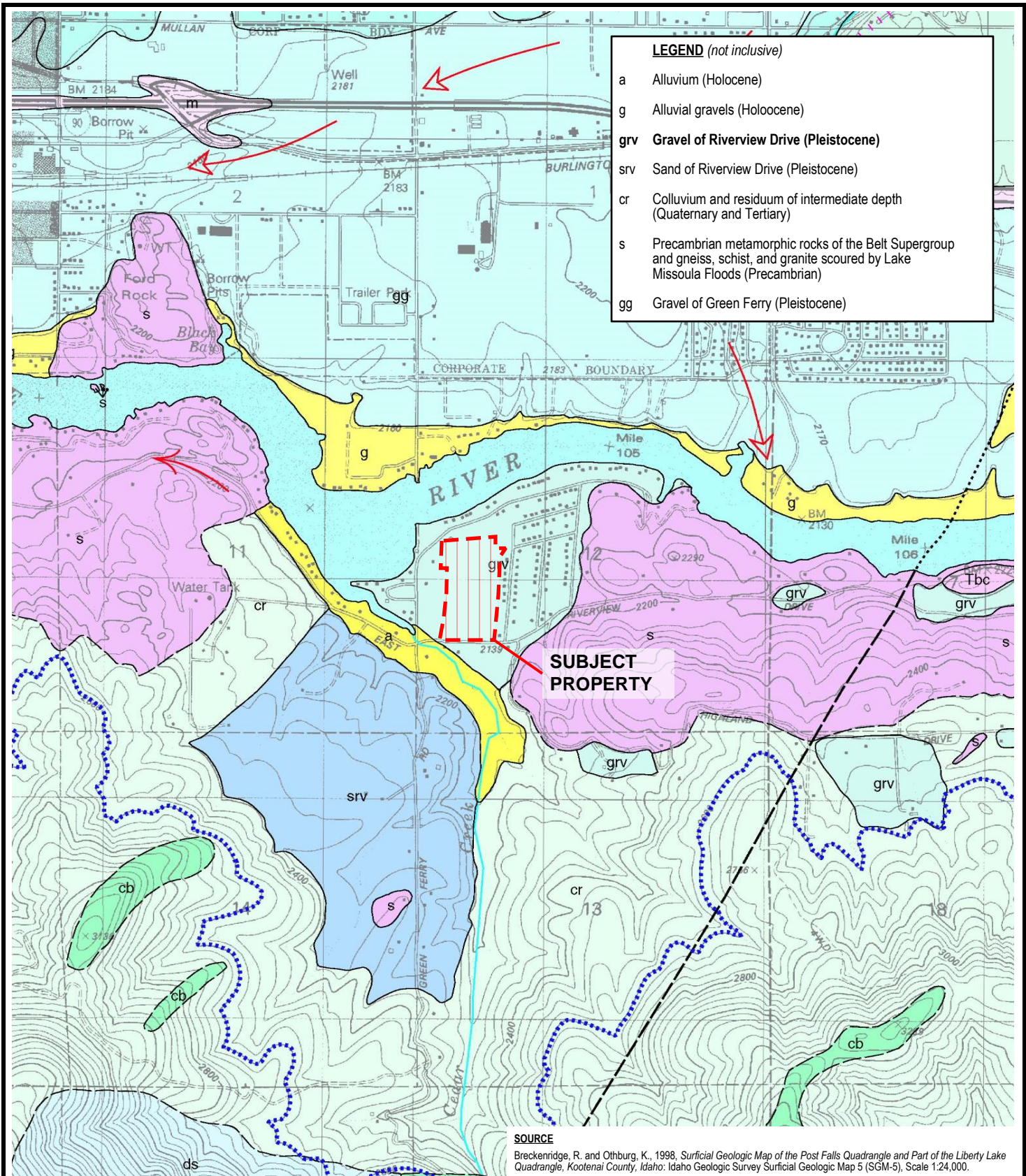
FIGURE

3

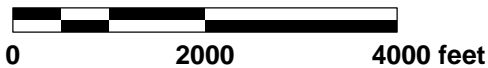
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20201023

Project: LCE2020009; Figure 4.vsd



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LCE-2020-009

October 2020

SURFICIAL GEOLOGY MAP
LEVEL 1 NUTRIENT-PATHOGEN EVALUATION
BAYSHORE ESTATES
LAKE CITY ENGINEERING
POST FALLS, IDAHO

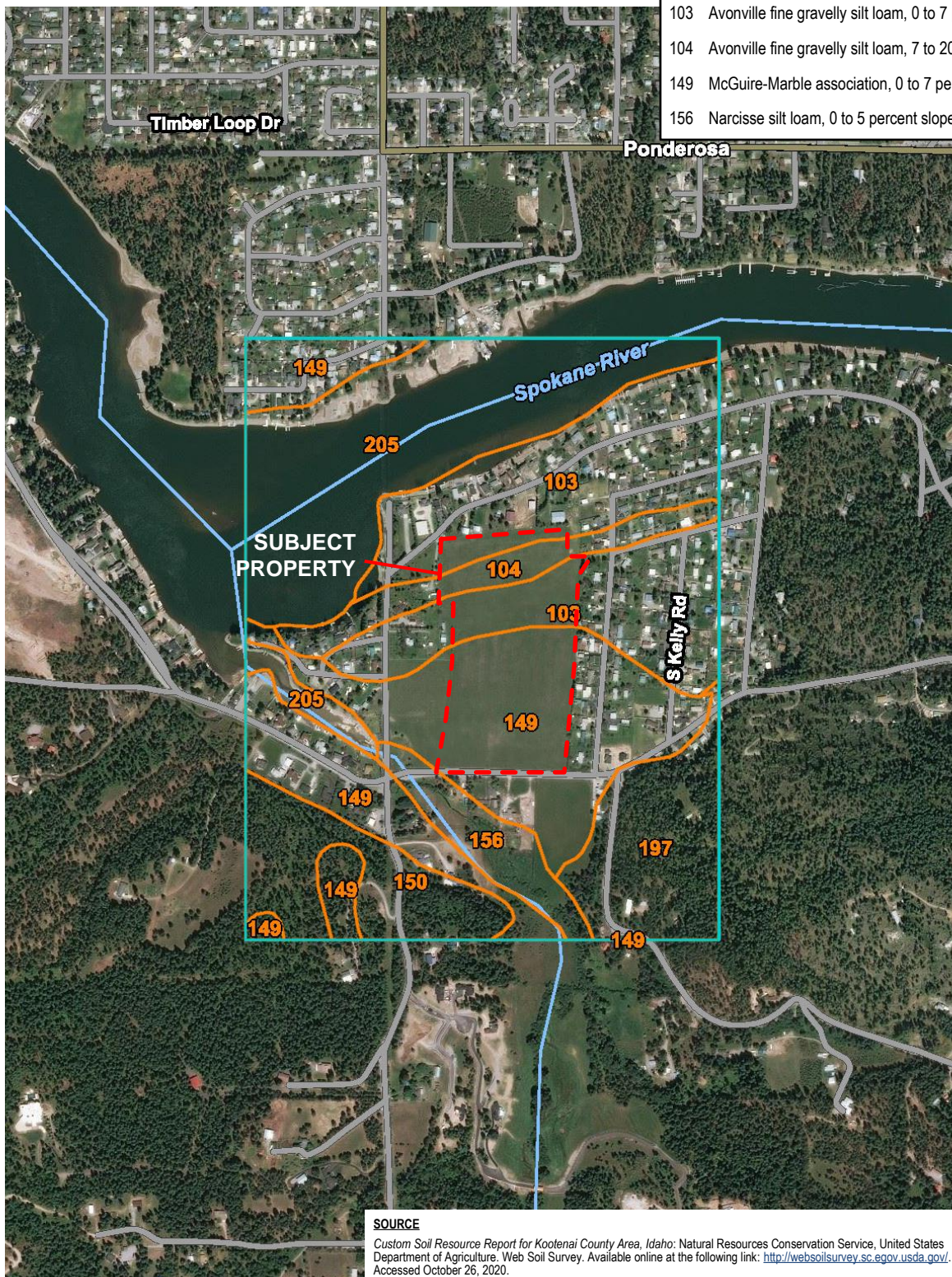
FIGURE

4

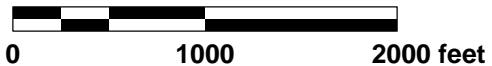
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Project: LCE\2021\002\Figure 5_vsd



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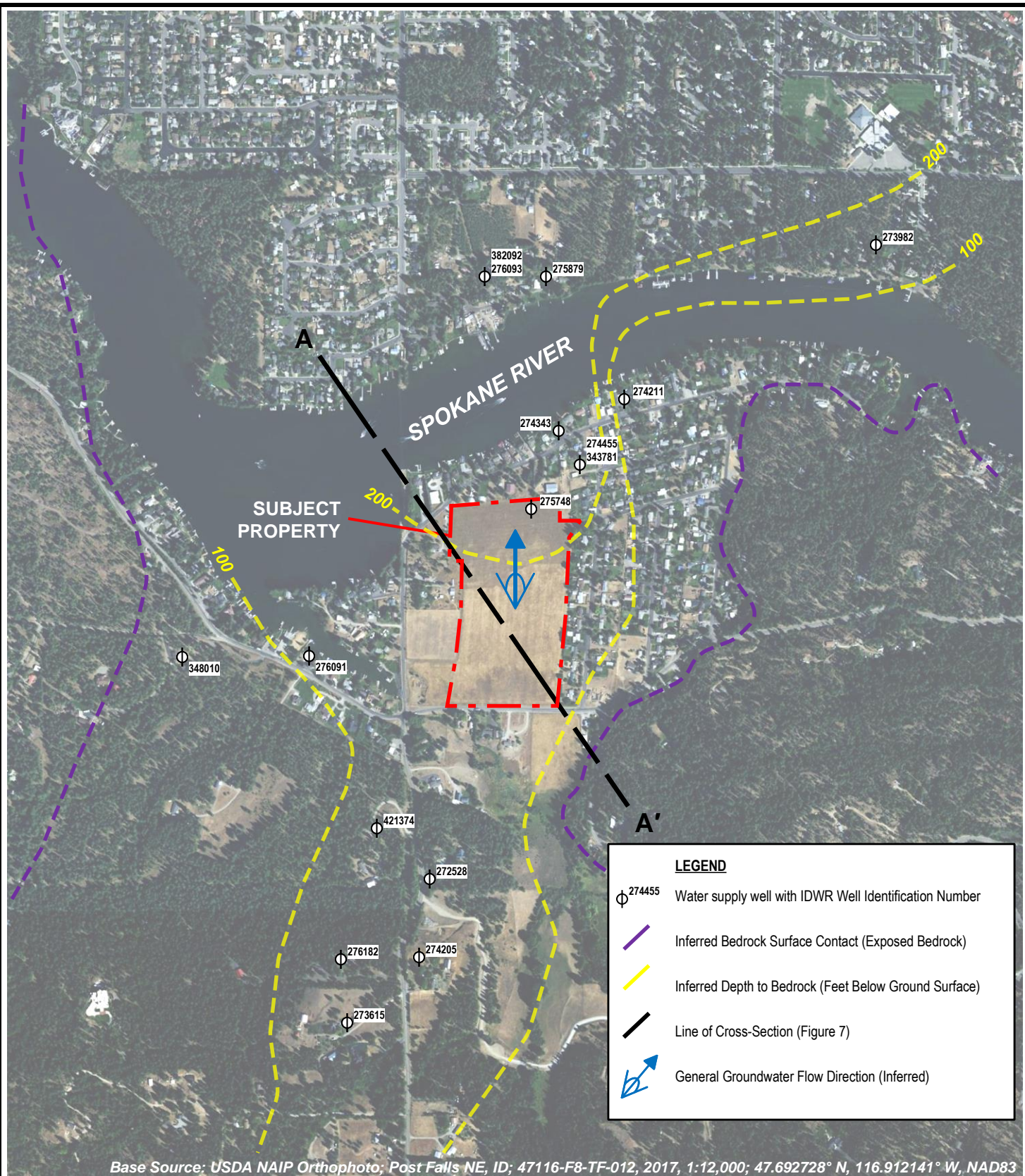
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SOILS MAP
 LEVEL 2 NUTRIENT-PATHOGEN EVALUATION
 BAYSHORE ESTATES
 LAKE CITY ENGINEERING
 POST FALLS, IDAHO

FIGURE
5

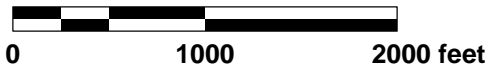
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Base Source: USDA NAIP Orthophoto; Post Falls NE, ID; 47116-F8-TF-012, 2017, 1:12,000; 47.692728° N, 116.912141° W, NAD83

SCALE 1 : 12,000



LEGEND

- 274455 Water supply well with IDWR Well Identification Number
- Inferred Bedrock Surface Contact (Exposed Bedrock)
- Inferred Depth to Bedrock (Feet Below Ground Surface)
- Line of Cross-Section (Figure 7)
- General Groundwater Flow Direction (Inferred)

Project\LCE\2021\002\Figure 6_vsd

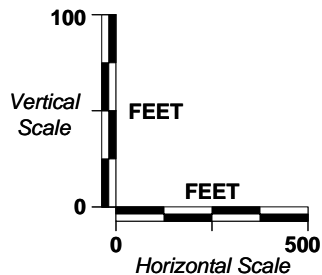
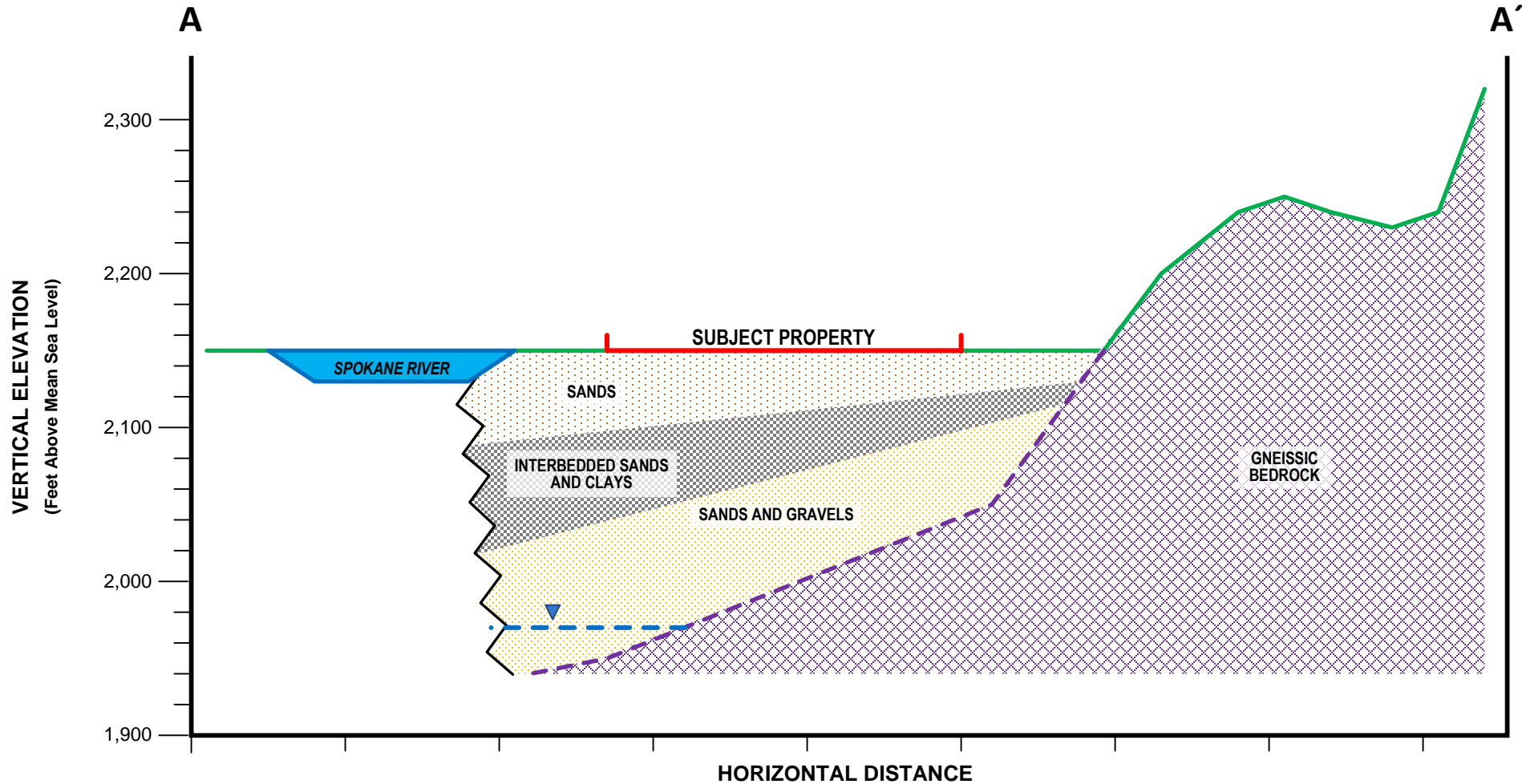
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BEDROCK TOPOGRAPHY
 LEVEL 2 NUTRIENT-PATHOGEN EVALUATION
 BAYSHORE ESTATES
 LAKE CITY ENGINEERING
 POST FALLS, IDAHO


FIGURE
6

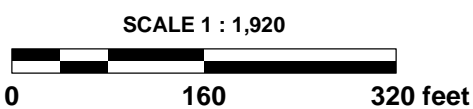
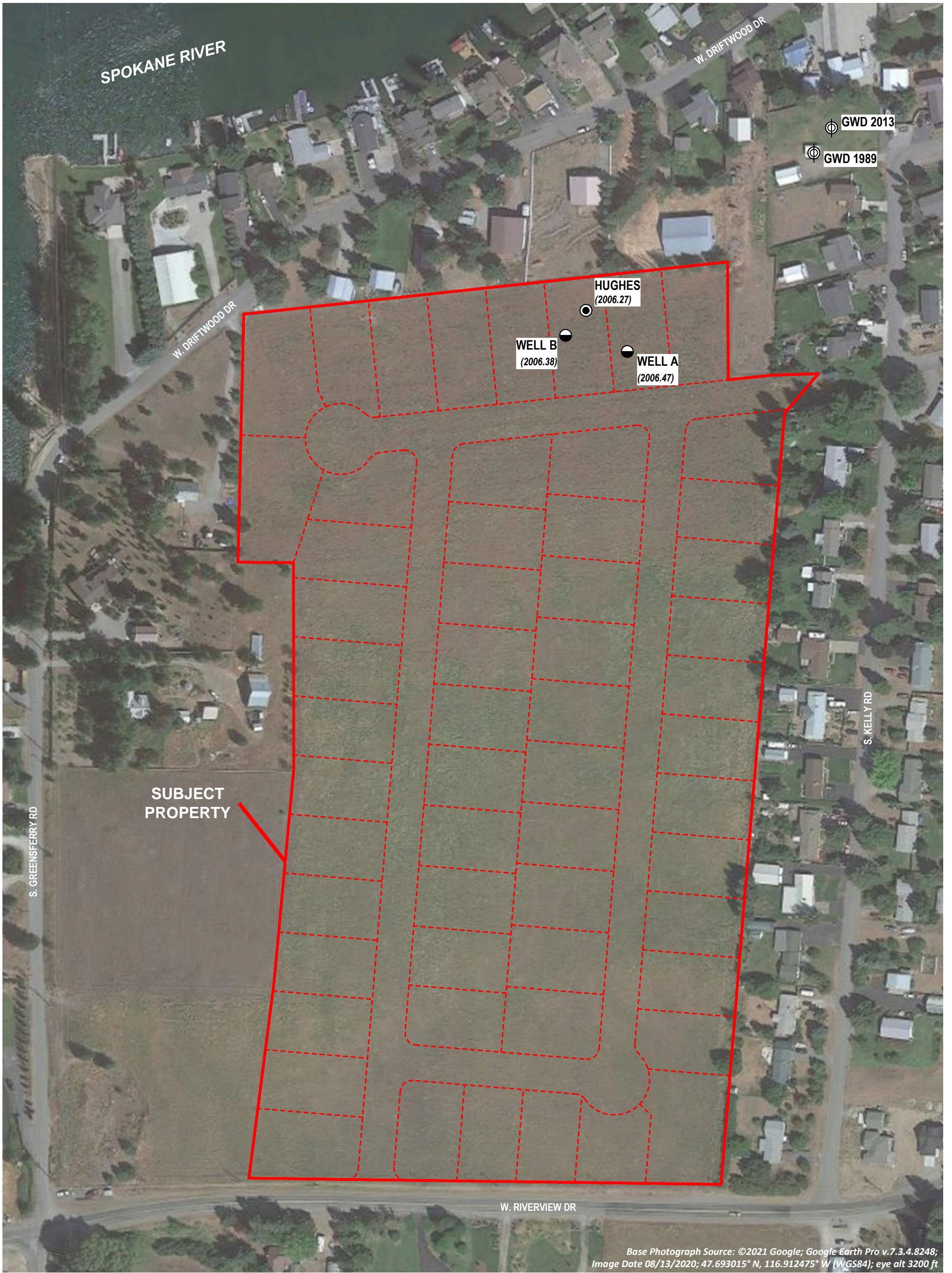


LEGEND

Water Table

NOTE: All subsurface lithology and depth to water inferred from Idaho Department of Water Resources Well Driller Reports

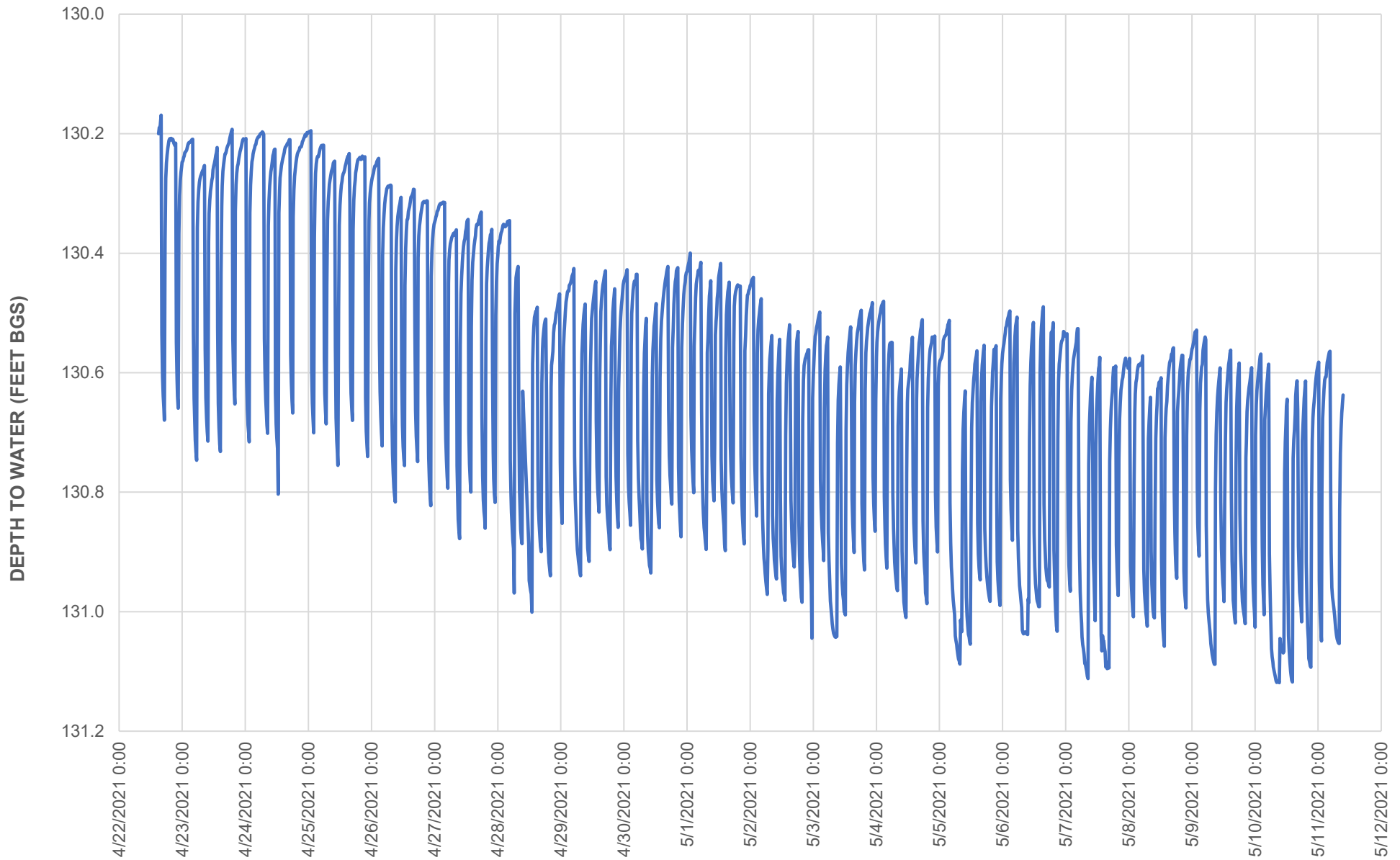
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CROSS-SECTION A - A' LEVEL 2 NUTRIENT-PATHOGEN EVALUATION BAYSHORE ESTATES LAKE CITY ENGINEERING POST FALLS, IDAHO	
FIGURE 7	



LEGEND

- Installed Monitoring Well (2006.27) Potentiometric Surface Elevation (Measured May 11, 2021)
- Existing Pumping Well
- ⊕ Existing Public Supply Well



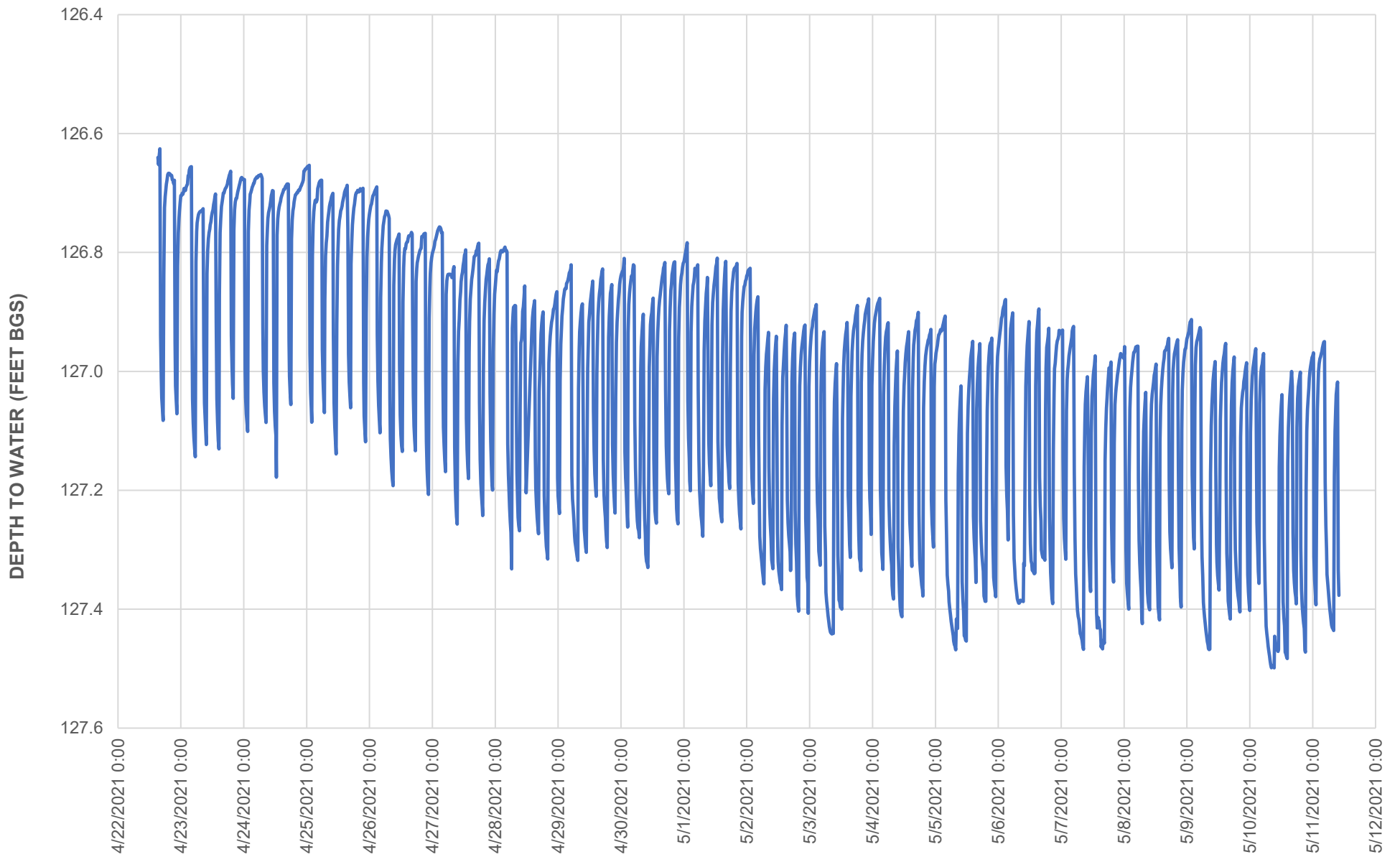


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WELL A BACKGROUND MONITORING
LEVEL 2 NUTRIENT PATHOGEN EVALUATION
BAYSHORE ESTATES
LAKE CITY ENGINEERING
POST FALLS, IDAHO

FIGURE
9

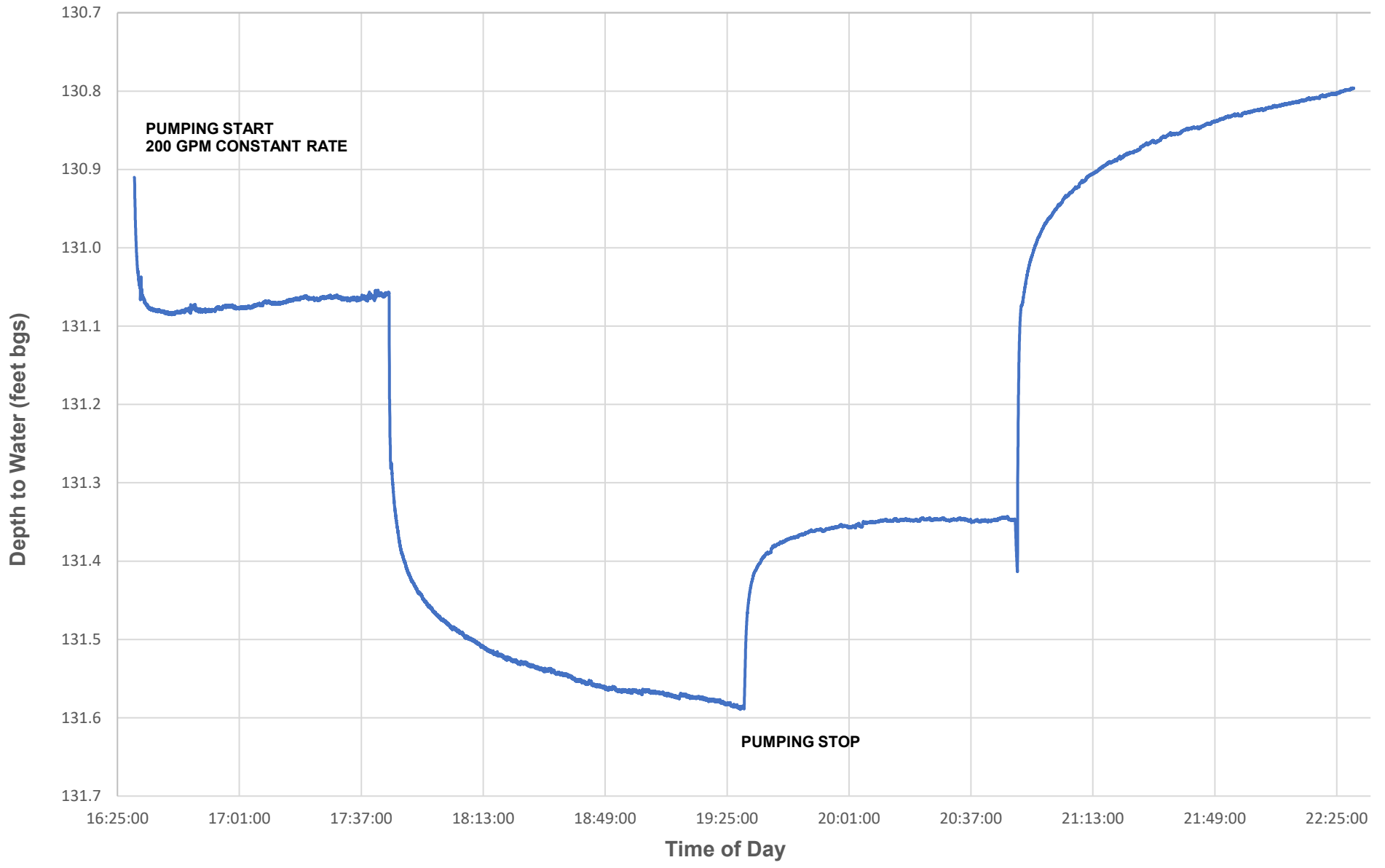


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WELL B BACKGROUND MONITORING
LEVEL 2 NUTRIENT PATHOGEN EVALUATION
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POST FALLS, IDAHO

FIGURE
10

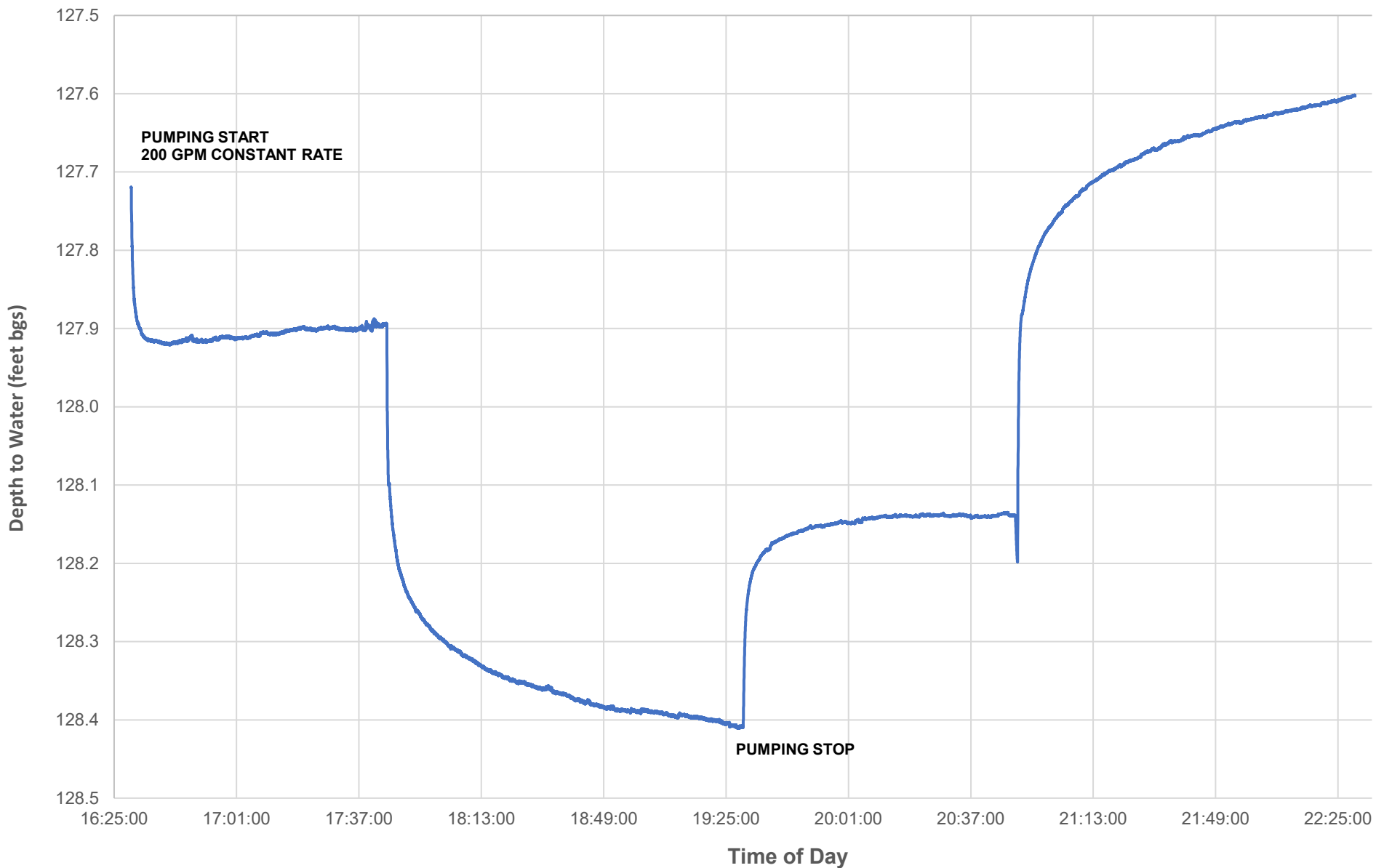


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WELL A DRAWDOWN/RECOVERY TEST
LEVEL 2 NUTRIENT PATHOGEN EVALUATION
BAYSHORE ESTATES
LAKE CITY ENGINEERING
POST FALLS, IDAHO

FIGURE
11



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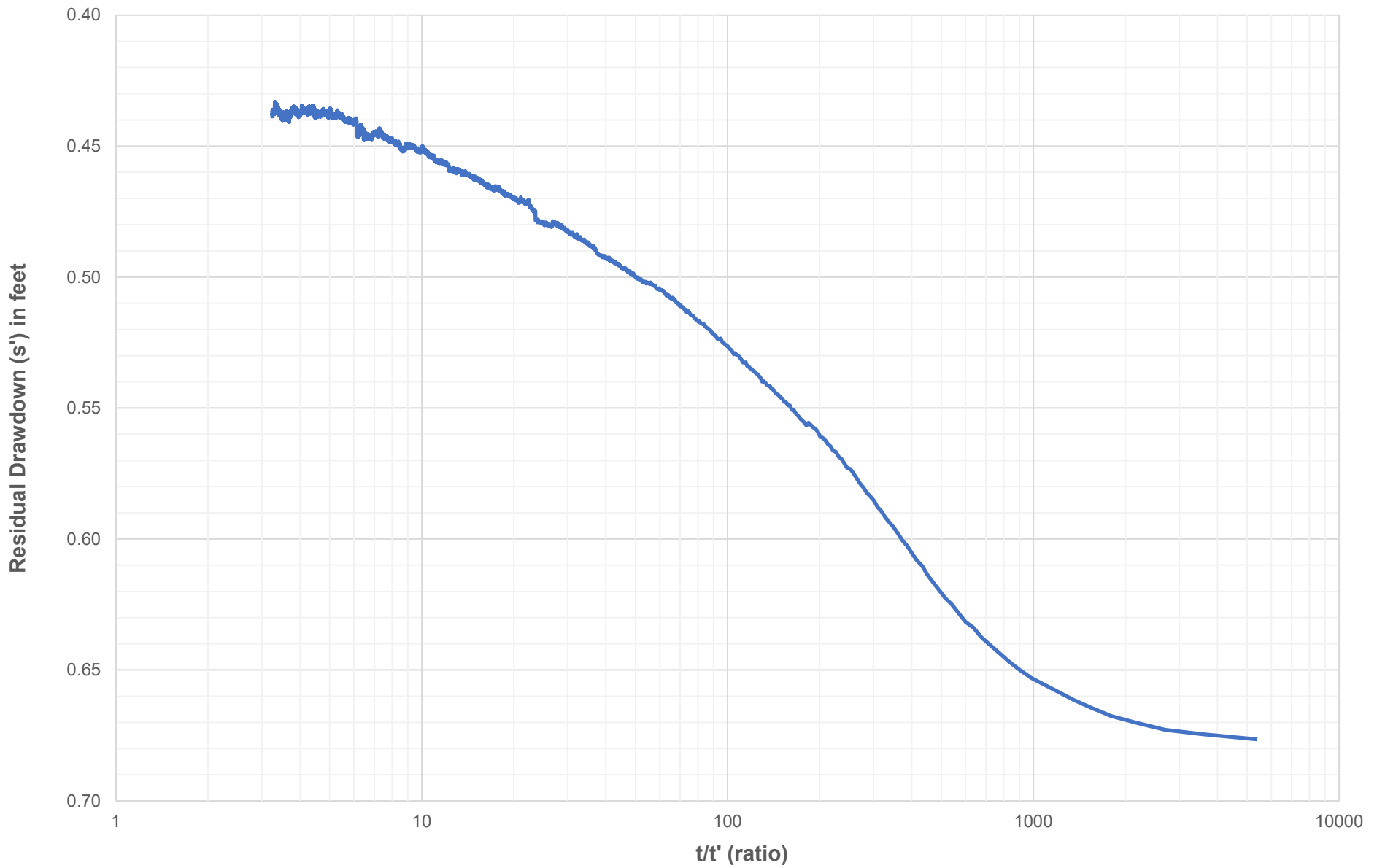
WELL B DRAWDOWN/RECOVERY TEST

LEVEL 2 NUTRIENT PATHOGEN EVALUATION

BAYSHORE ESTATES
LAKE CITY ENGINEERING
POST FALLS, IDAHO

FIGURE

12

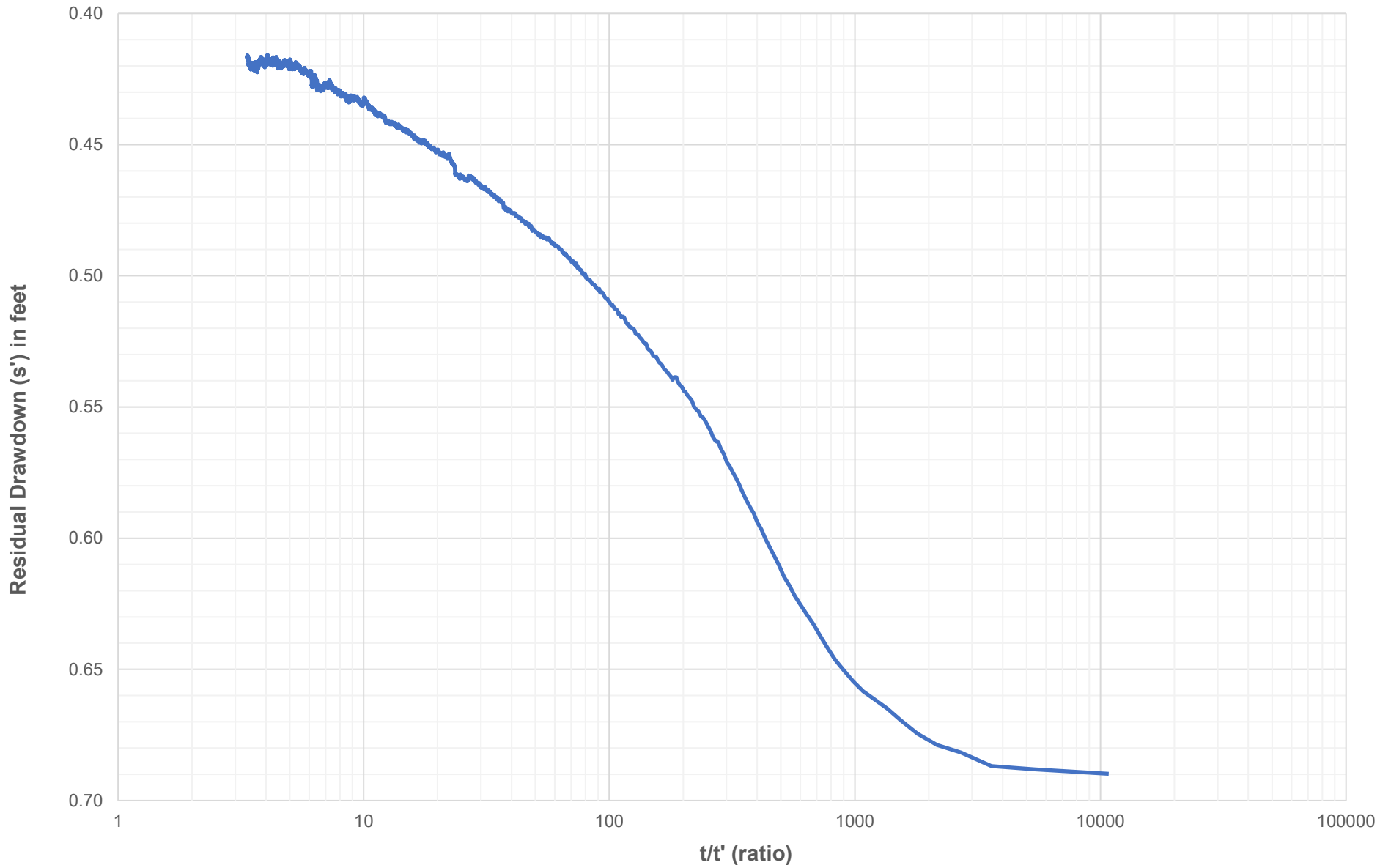


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WELL A RECOVERY ANALYSIS
 LEVEL 2 NUTRIENT PATHOGEN EVALUATION
 BAYSHORE ESTATES
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 POST FALLS, IDAHO

FIGURE
13

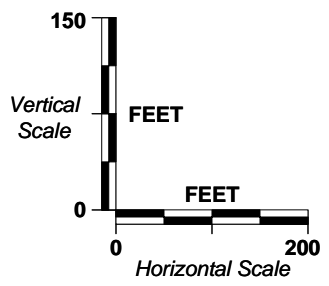
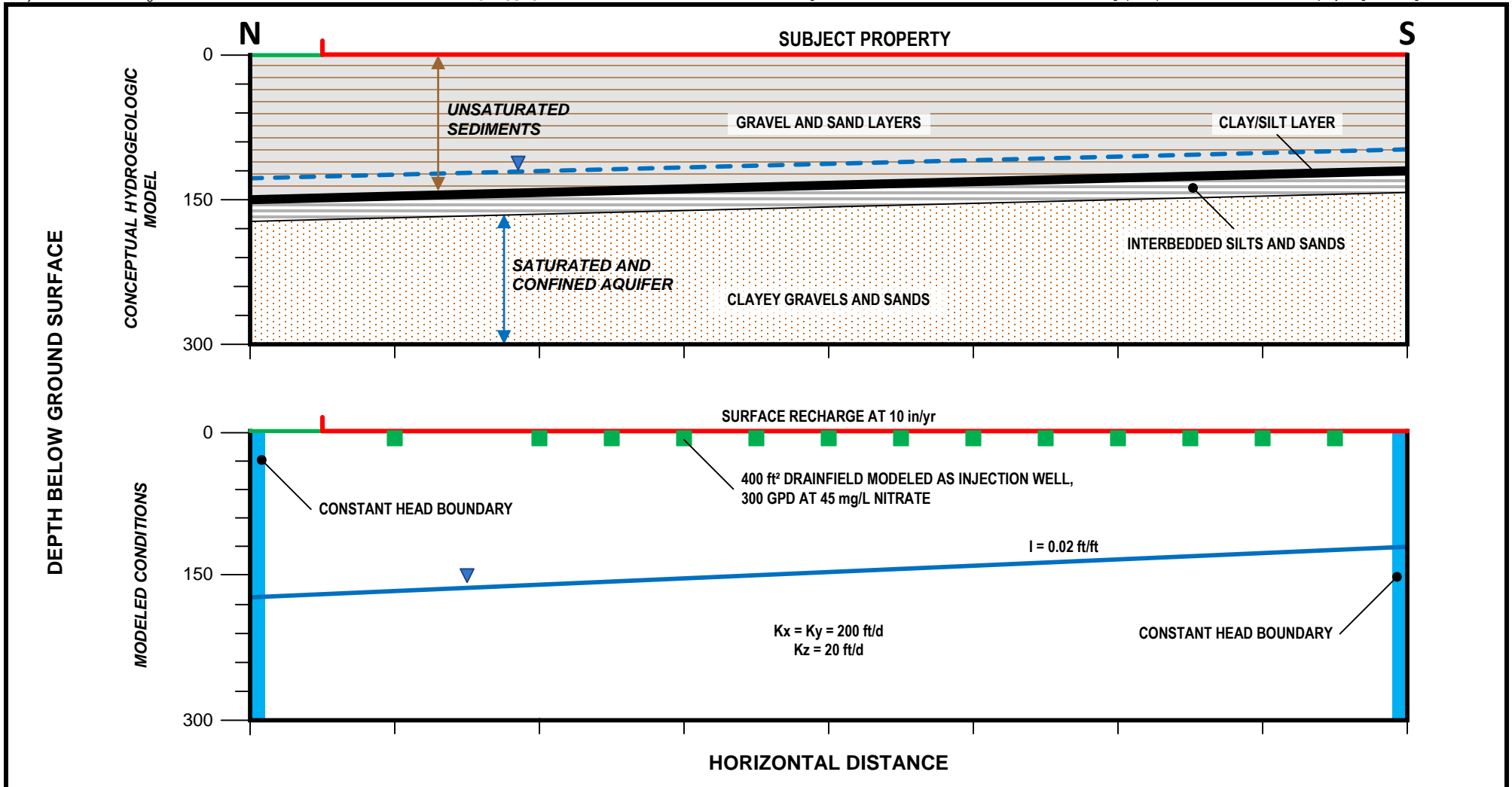


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WELL B RECOVERY ANALYSIS
LEVEL 2 NUTRIENT PATHOGEN EVALUATION
BAYSHORE ESTATES
LAKE CITY ENGINEERING
POST FALLS, IDAHO

FIGURE
14




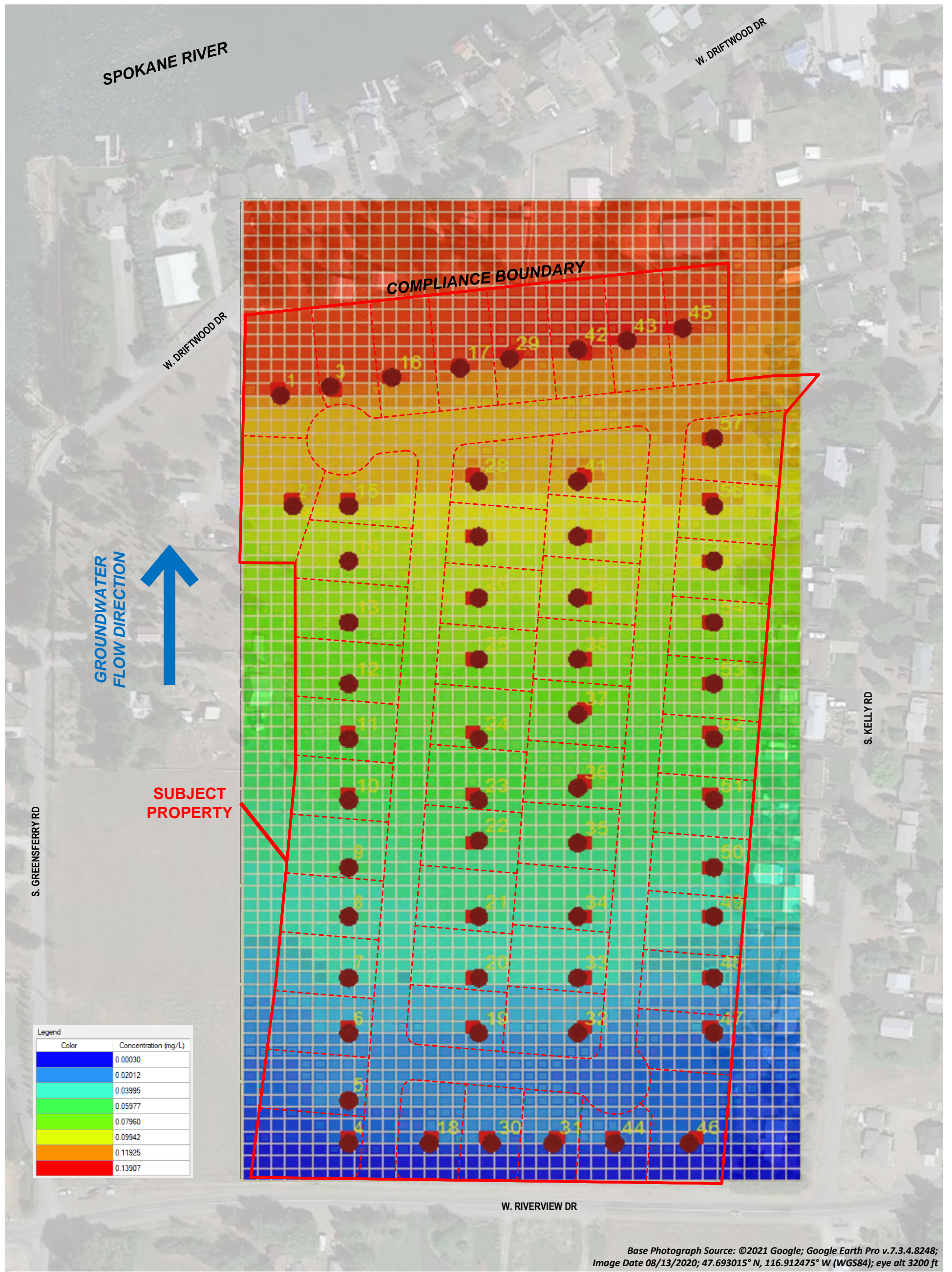
LEGEND

▼ - - - Potentiometric Surface

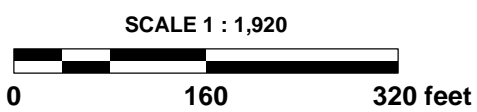
▼ — Water Table

NOTE: All subsurface lithology and depth to water inferred from Idaho Department of Water Resources Well Driller Reports

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SITE CONCEPTUAL MODELS LEVEL 2 NUTRIENT-PATHOGEN EVALUATION BAYSHORE ESTATES LAKE CITY ENGINEERING POST FALLS, IDAHO	
FIGURE 15	



Base Photograph Source: ©2021 Google; Google Earth Pro v.7.3.4.8248; Image Date 08/13/2020; 47.693015° N, 116.912475° W (WGS84); eye alt 3200 ft



LEGEND

● Modeled Drainfield





ATTACHMENT A

BAYSHORE ESTATES SUBDIVISION CONCEPTUAL PLAT



Professional engineering and architectural stamps, including the logo for LAKE CITY ENGINEERING.

LAKE CITY ENGINEERING

Professional Engineer Seal: [Blank Seal]

Professional Architect Seal: [Blank Seal]

Professional Surveyor Seal: [Blank Seal]

Professional Geotechnical Engineer Seal: [Blank Seal]

Professional Environmental Engineer Seal: [Blank Seal]

Professional Electrical Engineer Seal: [Blank Seal]

Professional Mechanical Engineer Seal: [Blank Seal]

Professional Civil Engineer Seal: [Blank Seal]

Professional Chemical Engineer Seal: [Blank Seal]

Professional Industrial Engineer Seal: [Blank Seal]

Professional Nuclear Engineer Seal: [Blank Seal]

Professional Aeronautical and Astronautical Engineer Seal: [Blank Seal]

Professional Agricultural Engineer Seal: [Blank Seal]

Professional Mining Engineer Seal: [Blank Seal]

Professional Metallurgical Engineer Seal: [Blank Seal]

Professional Petroleum Engineer Seal: [Blank Seal]

Professional Fire Protection Engineer Seal: [Blank Seal]

Professional Safety Engineer Seal: [Blank Seal]

Professional Environmental Scientist Seal: [Blank Seal]

Professional Environmental Health and Safety Engineer Seal: [Blank Seal]

Professional Environmental Health and Safety Scientist Seal: [Blank Seal]

Professional Environmental Health and Safety Specialist Seal: [Blank Seal]

Professional Environmental Health and Safety Technician Seal: [Blank Seal]

Professional Environmental Health and Safety Assistant Seal: [Blank Seal]

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Professional Environmental Health and Safety Trainee Seal: [Blank Seal]

Professional Environmental Health and Safety Aide Seal: [Blank Seal]

Professional Environmental Health and Safety Support Seal: [Blank Seal]

Professional Environmental Health and Safety Office Seal: [Blank Seal]

Professional Environmental Health and Safety Field Seal: [Blank Seal]

Professional Environmental Health and Safety Laboratory Seal: [Blank Seal]

Professional Environmental Health and Safety Quality Control Seal: [Blank Seal]

Professional Environmental Health and Safety Quality Assurance Seal: [Blank Seal]

Professional Environmental Health and Safety Compliance Seal: [Blank Seal]

Professional Environmental Health and Safety Audit Seal: [Blank Seal]

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Professional Environmental Health and Safety Monitoring Seal: [Blank Seal]

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Professional Environmental Health and Safety Strategy Seal: [Blank Seal]

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Professional Environmental Health and Safety Performance Seal: [Blank Seal]

Professional Environmental Health and Safety Product Seal: [Blank Seal]

Professional Environmental Health and Safety Service Seal: [Blank Seal]

Professional Environmental Health and Safety Process Seal: [Blank Seal]

Professional Environmental Health and Safety System Seal: [Blank Seal]

Professional Environmental Health and Safety Program Seal: [Blank Seal]

Professional Environmental Health and Safety Strategy Seal: [Blank Seal]

Professional Environmental Health and Safety Policy Seal: [Blank Seal]

Professional Environmental Health and Safety Procedure Seal: [Blank Seal]

Professional Environmental Health and Safety Practice Seal: [Blank Seal]

Professional Environmental Health and Safety Method Seal: [Blank Seal]

Professional Environmental Health and Safety Technique Seal: [Blank Seal]

Professional Environmental Health and Safety Tool Seal: [Blank Seal]

Professional Environmental Health and Safety Equipment Seal: [Blank Seal]

Professional Environmental Health and Safety Material Seal: [Blank Seal]

Professional Environmental Health and Safety Substance Seal: [Blank Seal]

Professional Environmental Health and Safety Hazard Seal: [Blank Seal]

Professional Environmental Health and Safety Risk Seal: [Blank Seal]

Professional Environmental Health and Safety Exposure Seal: [Blank Seal]

Professional Environmental Health and Safety Effect Seal: [Blank Seal]

Professional Environmental Health and Safety Outcome Seal: [Blank Seal]

Professional Environmental Health and Safety Impact Seal: [Blank Seal]

Professional Environmental Health and Safety Benefit Seal: [Blank Seal]

Professional Environmental Health and Safety Cost Seal: [Blank Seal]

Professional Environmental Health and Safety Value Seal: [Blank Seal]

Professional Environmental Health and Safety Quality Seal: [Blank Seal]

Professional Environmental Health and Safety Performance Seal: [Blank Seal]

Professional Environmental Health and Safety Product Seal: [Blank Seal]

Professional Environmental Health and Safety Service Seal: [Blank Seal]



ATTACHMENT B

IDWR WELL DRILLER'S REPORTS

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

77698



Office Use Only			
Inspected by	_____		
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat:	:	Long:	:

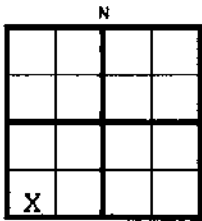
95-98-N-36
1. DRILLING PERMIT NO. TAG#D0003620

Other IDWR No. _____

2. OWNER **Well Number:**
Name SAMPSON, GARY 872

Address 206 OSPREY CT.
City POST FALLS State ID Zip 83854

3. LOCATION OF WELL by legal description
sketch map location must agree with written location



Twp. 50 North or South
Rge. 05 East or West
Sec. 12 1/4 SW 1/4 SW 1/4

Gov't Lot _____ County KOOTENAI
Lat: _____ Long: _____

Address of Well Site S 1700 GREENSFER
City POST FALLS

(Give at least name of road + Distance to Road or Landmark)

Bk. _____ Sub. Name _____

4. USE:
 Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

5. TYPE OF WORK check all that apply (Replacement, etc.)
 New Well Modify Abandonment Other _____

6. DRILL METHOD
 Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
BENTONITE	0	18	9 SACKS	GRANULAR

Was drive shoe used? Y N Shoe Depth(s) 0
Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	166	.250	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	-143	243	.160	PVC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations Method SKILLSAW
 Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
203	243	1/8X6	100	4	PVC	<input type="checkbox"/>	<input checked="" type="checkbox"/>

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
165 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: 6" WELL CAP

T50NR5W 12 SW SW

11. WELL TESTS:

Pump Bailer Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
45+			1 HR

Water Temp. _____ Bottom Hole Temp _____

Water Quality test or comments: _____

Depth first Water encountered 190'

12. LITHOLOGIC LOG:(Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality, Temperature	Water	
				Y	N
8	0	64	Sands	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	64	66	Sand W/Granite Gravel	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	66	79	Sands	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	79	84	Sands W/Clay	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	84	140	Sands	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	140	164	Sands W/Pea Gravel	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	164	166	Granite Black White	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	166	178	Granite Black W/White	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	178	190	Decomposed Granite Clay W/Sand	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	190	221	Decomposed Granite	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	221	243	Granite White W/Black	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	0	0	4"x6" Formation Packer Placed at 190'	<input type="checkbox"/>	<input type="checkbox"/>

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APR 30 1998

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NORTHERN REGION
IDWR

Completed Depth 243' (Measurable)

Date: Started 3/23/98 Completed 3/24/98

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name H2O Well Service, Inc. Firm No. 448

Firm Official _____ Date _____

and

Supervisor or Operator _____ Date 3-26-98

(Sign Once if Firm Official and Operator)

(Todd Morgan)



WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
 Name JOE MURPHY
 Address S. 2101 GREENS FERRY, CDA, ID
 Drilling Permit No. 95-92-N-233
 Water Right Permit No. _____

7. WATER LEVEL
 Static water level 100 feet below land surface.
 Flowing? Yes No G.P.M. flow _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by: Valve Cap Plug
 Temperature _____ °F. Quality GOOD
Describe artesian or temperature zones below.

2. NATURE OF WORK
 New well Deepened Replacement
 Well diameter increase Modification
 Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

8. WELL TEST DATA
 Pump Bailor Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
5-7 EST	740	2

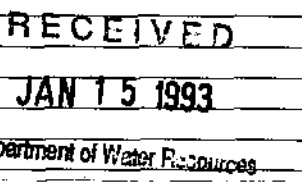
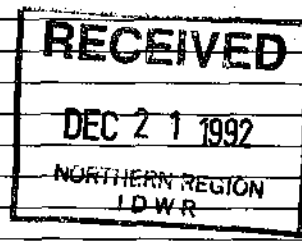
3. PROPOSED USE
 Domestic Irrigation Monitor
 Industrial Stock Waste Disposal or Injection
 Other _____ (specify type)

9. LITHOLOGIC LOG 104519

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
8	0	1	SOIL		X
	1	20	FINE SAND		X
6	20	48	FINE SAND		X
	48	85	GRAVEL - FINE		X
	85	95	COBBLES		X
	95	134	GRAVEL - FINE		X
	134	160	GRANITE - B&W		X
	160	180	GRANITE - SOFT B&W	X	
	180	380	GRANITE - B&W		X
	380	420	GRANITE - SOFT B&W	X	
	420	700	GRANITE - B&W	X	
	700	740	GRANITE - B&W		X

4. METHOD DRILLED
 Rotary Air Auger Reverse rotary
 Cable Mud Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
 Casing schedule: Steel Concrete Other _____
Thickness Diameter From To
25 inches 6 inches + 1 feet 134 feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 Was casing drive shoe used? Yes No
 Was a packer or seal used? Yes No
 Perforated? Yes No
 How perforated? Factory Knife Torch Gun
 Size of perforation? _____ inches by _____ inches
Number From To
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 Well screen installed? Yes No
 Manufacturer _____ Type _____
 Top Packer or Headpipe _____
 Bottom of Tailpipe _____
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Gravel packed? Yes No Size of gravel _____
 Placed from _____ feet to _____ feet
 Surface seal depth 20. Material used in seal: Cement grout
 Bentonite Pudding clay _____
 Sealing procedure used: Slurry pit
 Temp. surface casing Overbore to seal depth
 Method of joining casing: Threaded Welded
 Solvent Weld Cemented between strata
 Describe access port N/A



6. LOCATION OF WELL
 Sketch map location must agree with written location.

 Subdivision Name AUG 09 1993
 Lot No. _____ Block No. _____
 County KOOTENAI
 Address of Well Site S. 2101 GREENS FERRY
(give at least name of road)
 T. 50N. N or S
 SE 1/4 SE 1/4 Sec. 11, R. 5W E or W

10.
 Work started 11/16/92 finished 11/25/92

11. DRILLER'S CERTIFICATION
 I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
 Firm Name UNITED DRILLING FIRM CO. 414
 Address P.O. BOX 1690 Date 11/30/92
HAYDEN, ID 83835
 Signed by Drilling Supervisor [Signature]
 and
 (Operator) Larry Vanderlieden, JR.
(if different than the Drilling Supervisor)

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AUG 09 1993

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR
BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources
within 30 days after the completion or abandonment of the well.

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JUN 28 1991
NORTHWESTERN REGION
IDWR

1. WELL OWNER
Name Bernice Moore-Brian Jorgenson
Address E 3425 Ponderosa Blvd.
Drilling Permit No. 95-91-N-24
Water Right Permit No. _____

7. WATER LEVEL
Static water level 158 feet below land surface.
Flowing? Yes No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: Valve Cap Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

2. NATURE OF WORK
 New well Deepened Replacement
 Well diameter increase
 Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

8. WELL TEST DATA
 Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
<u>Air Lift 8+</u>		

3. PROPOSED USE
 Domestic Irrigation Test Municipal
 Industrial Stock Waste Disposal or Injection
 Other _____ (specify type)

9. LITHOLOGIC LOG

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
6	0	20	Sand Gravel Boulders		X
	20	60	Sand Gravel		X
	60	62	Boulders		X
	62	120	Sand Gravel		X
	120	122	Boulders		X
	122	165	Sand Gravel		X
	165	168	Boulders		X
	168	180	Granite Med	X	
	180	240	Granite Med		Y
	240	255	Granite Soft	X	
	255	330	Granite Med		
	330	360	Granite Soft	X	
	360	480	Granite hard		
	480	500	Granite soft	X	

4. METHOD DRILLED
 Rotary Air Hydraulic Reverse rotary
 Cable Dug Other _____

5. WELL CONSTRUCTION
Casing schedule: Steel Concrete Other 360
Thickness _____ inches Diameter _____ inches From _____ feet To _____ feet
250 inches 6 inches + 1 feet 364 feet
160 inches 4 inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
Was casing drive shoe used? Yes No
Was a packer or seal used? Yes No
Perforated? Yes No SAW
How perforated? Factory Knife Torch Gun
Size of perforation 1/8 inches by 4 inches
Number _____ From _____ To _____
60 perforations 460 feet 500 feet
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
Well screen installed? Yes No
Manufacturer's name _____
Type _____ Model No. _____
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? Yes No Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 18 Material used in seal: Cement grout
 Bentonite Pudding clay _____
Sealing procedure used: Slurry pit Temp. surface casing
 Overbore to seal depth
Method of joining casing: Threaded Welded Solvent Weld
 Cemented between strata
Describe access port _____

10. Work started 6-1-91 finished 6-17-91

6. LOCATION OF WELL
Sketch map location must agree with written location.
Subdivision Name _____
Lot No. 28 Block No. DEC 04 1991
County Kootenai
NW 1/4 NE 1/4 Sec. 12, T. 50 N S E W
R. 5

11. DRILLERS CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name H2O Well Serv Firm No. 448
Address Hayden Id. Date 6-19-91
Signed by (Firm Official) Johnnie
and
(Operator) Matt Hammond

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
 Name Dwight Fitzgerald
 Address 1870 Greens Ferry, Post Falls, Id.
 Drilling Permit No. 95-92-N-61
 Water Right Permit No. _____

7. WATER LEVEL
 Static water level 98 feet below land surface.
 Flowing? Yes No G.P.M. flow _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by: Valve Cap Plug
 Temperature _____ °F. Quality _____
 Describe artesian or temperature zones below.

2. NATURE OF WORK
 New well Deepened Replacement
 Well diameter increase
 Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

8. WELL TEST DATA
 Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
<u>20</u>	<u>138</u>	<u>1</u>

3. PROPOSED USE
 Domestic Irrigation Test Municipal
 Industrial Stock Waste Disposal or Injection
 Other _____ (specify type)

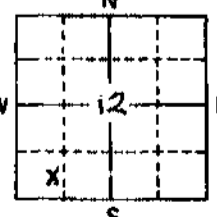
9. LITHOLOGIC LOG 080020

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
<u>8</u>	<u>0</u>	<u>20</u>	<u>SAND</u>		<u>X</u>
<u>6</u>	<u>20</u>	<u>100</u>	<u>SAND</u>		<u>X</u>
	<u>100</u>	<u>120</u>	<u>Sandy gravel & clay</u>	<u>X</u>	
	<u>120</u>	<u>138</u>	<u>Sandy gravel</u>	<u>X</u>	

4. METHOD DRILLED
 Rotary Air Hydraulic Reverse rotary
 Cable Dug Other _____

5. WELL CONSTRUCTION
 Casing schedule: Steel Concrete Other _____
 Thickness _____ inches Diameter _____ inches From _____ feet To _____ feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 Was casing drive shoe used? Yes No
 Was a packer or seal used? Yes No
 Perforated? Yes No
 How perforated? Factory Knife Torch Gun
 Size of perforation _____ inches by _____ inches
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 Well screen installed? Yes No
 Manufacturer's name _____
 Type _____ Model No. _____
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Gravel packed? Yes No Size of gravel _____
 Placed from _____ feet to _____ feet
 Surface seal depth 50 Material used in seal: Cement grout
 Bentonite Puddling clay _____
 Sealing procedure used: Slurry pit Temp. surface casing
 Overbore to seal depth
 Method of joining casing: Threaded Welded Solvent
 _____ Weld
 Cemented between strata
 Describe access port _____

10. Work started 5-11-92 finished 5-12-92

6. LOCATION OF WELL
 Sketch map location must agree with written description

 Subdivision Name _____
 Lot No. _____ Block No. _____
 County Kootenai
 SW 1/4 SW 1/4 Sec. 12, T. 50 N S R. 5 E W

11. DRILLERS CERTIFICATION
 I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
 Firm Name H2O Well Svc. Firm No. 448
 Address Hayden Lake, Id. Date 5-12-92
 Signed by (Firm Official) [Signature]
 and
 (Operator) [Signature]

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
 Name Mr Rod Linton
 Address 3225 Driftwood Dr. Post Falls
 Drilling Permit No. 95-92-N-67
 Water Right Permit No. _____

7. WATER LEVEL
 Static water level 20 feet below land surface.
 Flowing? Yes No G.P.M. flow _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by: Valve Cap Plug
 Temperature _____ of. Quality _____
 Describe artesian or temperature zones below.

2. NATURE OF WORK
 New well Deepened Replacement
 Well diameter increase
 Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

8. WELL TEST DATA
 Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
<u>15+</u>	<u>163</u>	<u>1</u>

3. PROPOSED USE
 Domestic Irrigation Test Municipal
 Industrial Stock Waste Disposal or Injection
 Other _____ (specify type)

9. LITHOLOGIC LOG 080021

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
8	0	12	SAND & GRAVEL - Boulders	X	X
8 1/4	12	51	SAND & GRAVEL	X	X
10	51	116	Decomposed Granite	X	X
	116	118	Granite - soft - med	X	X
	118	138	Granite s.d.p. - med	X	X
	138	140	Granite - fine - @ 6 gpm	X	X
	140	147	Granite - green - med	X	X
	147	163	Granite - s.d.p. - med	X	X

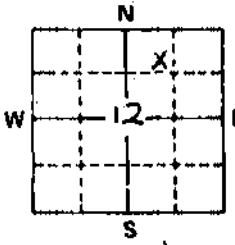
4. METHOD DRILLED
 Rotary Air Hydraulic Reverse rotary
 Cable Dug Other _____

5. WELL CONSTRUCTION PVC-150'
 Casing schedule: Steel Concrete Other
 Thickness _____ inches Diameter _____ inches From _____ feet To _____ feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 Was casing drive shoe used? Yes No
 Was a packer or seal used? Yes No
 Perforated? Yes No SAW
 How perforated? Factory Knife Torch Gun
 Size of perforation 1/8 inches by 5 inches
 _____ perforations _____ From _____ To _____
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 Well screen installed? Yes No
 Manufacturer's name _____
 Type _____ Model No. _____
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Gravel packed? Yes No Size of gravel _____
 Placed from _____ feet to _____ feet
 Surface seal depth 40 Material used in seal: Cement grout
 Bentonite Pudding clay _____
 Sealing procedure used: Slurry pit Temp. surface casing
 Overbore to seal depth
 Method of joining casing: Threaded Welded Solvent
 _____ Weld
 Cemented between strata
 Describe access port _____

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 NORTHERN REGION
 IDWR

RECEIVED
 MAY 26 1992

10. Work _____ finished 5-13-92

6. LOCATION OF WELL
 Sketch map location must agree with written location.

 Subdivision Name _____
 Lot No. _____ Block No. _____
 County Kootenai
 NW 1/4 NE 1/4 Sec. 12, T. 50 N S R. 5 W E

11. DRILLERS CERTIFICATION
 I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
 Firm Name H2O Well Svc Firm No. 448
 Address Hayden Lake Id Date 5-14-92
 Signed by (Firm Official) _____
 and
 (Operator) _____

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

<p>1. WELL OWNER</p> <p>Name <u>Jack Knox</u></p> <p>Address <u>E. 2765 Driftwood Dr. Coeur D'Alene, ID</u></p> <p>Owner's Permit No. <u>95-88-N-82</u></p>	<p>7. WATER LEVEL</p> <p>Static water level <u>132</u> feet below land surface.</p> <p>Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____</p> <p>Artesian closed-in pressure _____ p.s.i.</p> <p>Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug</p> <p>Temperature _____ °F. Quality _____</p> <p><i>Describe artesian or temperature zones below.</i></p>																																								
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement</p> <p><input type="checkbox"/> Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailor <input type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width:33%;">Discharge G.P.M.</th> <th style="width:33%;">Pumping Level</th> <th style="width:33%;">Hours Pumped</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">15</td> <td style="text-align: center;">200</td> <td style="text-align: center;">4</td> </tr> </tbody> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	15	200	4																																		
Discharge G.P.M.	Pumping Level	Hours Pumped																																							
15	200	4																																							
<p>3. PROPOSED USE</p> <p><input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input type="checkbox"/> Municipal</p> <p><input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection</p> <p><input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th rowspan="2">Bore Diam.</th> <th colspan="2">Depth</th> <th rowspan="2">Material</th> <th colspan="2">Water</th> </tr> <tr> <th>From</th> <th>To</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td></td> <td>1</td> <td>10</td> <td>sand & gravel</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td>10</td> <td>45</td> <td>sand & brn clay</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td>45</td> <td>70</td> <td>blue clay & sand</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td>70</td> <td>180</td> <td>sand & brn clay</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td>180</td> <td>200</td> <td>sand & pea gravel with brn clay</td> <td></td> <td></td> </tr> </tbody> </table>	Bore Diam.	Depth		Material	Water		From	To	Yes	No		1	10	sand & gravel	X			10	45	sand & brn clay		X		45	70	blue clay & sand		X		70	180	sand & brn clay		X		180	200	sand & pea gravel with brn clay		
Bore Diam.	Depth		Material	Water																																					
	From	To		Yes	No																																				
	1	10	sand & gravel	X																																					
	10	45	sand & brn clay		X																																				
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	70	180	sand & brn clay		X																																				
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<p>4. METHOD DRILLED</p> <p><input type="checkbox"/> Rotary <input type="checkbox"/> Air <input type="checkbox"/> Hydraulic <input type="checkbox"/> Reverse rotary</p> <p><input checked="" type="checkbox"/> Cable <input type="checkbox"/> Dug <input type="checkbox"/> Other _____</p>	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">RECEIVED</p> <p style="text-align: center;">JUN 26 1989</p> <p style="text-align: center;">NORTHERN REGION IDWR</p> </div>																																								
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<p>11. DRILLERS CERTIFICATION</p> <p>I/We certify that all minimum well construction standards were complied with at the time the rig was removed.</p> <p>Firm Name <u>Bronson Water Wells</u> Firm No. <u>360</u></p> <p>Address <u>Box 1 Spirit Lake, Id.</u> Date <u>10-22-88</u></p> <p>Signed by (Firm Official) <u>[Signature]</u></p> <p style="text-align: center;">and</p> <p>(Operator) _____</p>	<div style="text-align: center; margin: 10px 0;"> </div>																																								

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of W By: mciscell 2013-05-24
within 30 days after the completion or abandonment of the well

1. WELL OWNER

Name GREEN FERRY WATER + SEWER DIST

Address P.O. Box 1105 Post Falls ID. 83854

Owner's Permit No. 95-89-N-52

7. WATER LEVEL

Static water level 124' 10" feet below land surface.

Flowing? Yes No G.P.M. flow _____

Artesian closed-in pressure _____ p.s.i.

Controlled by: Valve Cap Plug

Temperature 48 OF. Quality GOOD

Describe artesian or temperature zones below.

2. NATURE OF WORK

New well Deepened Replacement

Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

8. WELL TEST DATA

Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
400	125' 6"	1
500	125' 10"	1
600	125' 11"	2.8
800	126' 5"	1
1100	127' 3"	.3

3. PROPOSED USE

Domestic Irrigation Test Municipal

Industrial Stock Waste Disposal or Injection

Other _____ (specify type)

9. LITHOLOGIC LOG

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
12	0	20	GRAVEL + SAND 2" MINUS		X
12	20	86	GRAVEL + SAND 2" MINUS		X
12	86	124	SAND MED TO FINE		X
12	124	163	SAND FINE + BRN CLAY		X
12	163	165	GRAVEL + SAND 2" MINUS	X	
12	165	171	SAND FINE + BRN CLAY		X
12	171	199	GRAVEL + SAND 6" MINUS	X	
12	199	208	GRAVEL + SAND 1" MINUS	X	
12	208	211	FINE SAND + BRN CLAY	X	
12	211	223	COURSE SAND		X
12	223	240	GRAVEL + SAND 1" MINUS	X	
12	240	245	GRAVEL + SAND 1/2" MINUS	X	
12	245	250	SAND MED TO FINE	X	

4. METHOD DRILLED

Rotary Air Hydraulic Reverse rotary

Cable Dug Other _____

5. WELL CONSTRUCTION

Casing schedule: Steel Concrete Other _____

Thickness	Diameter	From	To
.375 inches	12 inches	+ 2 feet	182 feet
.365 inches	10 inches	208 feet	225 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? Yes No

Was a packer or seal used? Yes No

Perforated? Yes No

How perforated? Factory Knife Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? Yes No

Manufacturer's name JOHNSON

Type STAINLESS STEEL Model No. PS.

Diameter 12 Slot size 100 Set from 180 feet to 208 feet

Diameter 12 Slot size 100 Set from 208 feet to 245 feet

Gravel packed? Yes No Size of gravel _____

Placed from _____ feet to _____ feet

Surface seal depth 20 FT Material used in seal: Cement grout

Bentonite Puddling clay _____

Sealing procedure used: Slurry pit Temp. surface casing

Overbore to seal depth

Method of joining casing: Threaded Welded Solvent Weld

Cemented between strata

Describe access port 2" TUBE THRU SIDE OF CASING

12" HOLE BACKFILLED WITH GRAVEL FROM 245' TO 250' PRIOR TO SETTING SCREEN

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JAN 02 1990

NORTHERN REGION
IDWR

6. LOCATION OF WELL

Sketch map location must agree with written

N

X		

S

Subdivision Name _____

Lot No. _____ Block No. _____

County BOOTHEA

S.W. 1/4 N4. 1/4 Sec. 12, T. 50 N, R. 5 E

MICROFILMED

AUG 13 1990

10. Work started OCT 17-89 finished DEC 8-89

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

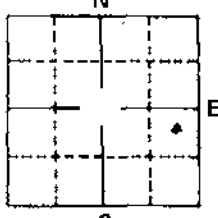
Firm Name HOLMAN DRILLING CORP Firm No. 108

Address E3410 9th AVE Date DEC 26-89
SPokane WA 99202

Signed by (Firm Official) Arnold E. Holman
and General Purney
(Operator)

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

<p>1. WELL OWNER</p> <p>Name <u>Mike Hughes</u> P.O. Box <u>2401</u> Address <u>Post Falls, Idaho</u> Owner's Permit No. <u>95-80-N-27</u></p>	<p>7. WATER LEVEL</p> <p>Static water level <u>147</u> feet below land surface. Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug Temperature _____ °F. Quality _____</p>																																																																																														
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement <input type="checkbox"/> Abandoned (describe method of abandoning) _____</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailor <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped																																																																																											
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<p>3. PROPOSED USE</p> <p><input type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input checked="" type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection <input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Hole Diam.</th> <th colspan="2">Depth</th> <th rowspan="2">Material</th> <th colspan="2">Water</th> </tr> <tr> <th>From</th> <th>To</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr><td>8"</td><td>0</td><td>4</td><td>top soil</td><td></td><td></td></tr> <tr><td></td><td>4</td><td>22</td><td>bluffs 30% gravel</td><td></td><td></td></tr> <tr><td></td><td>22</td><td>37</td><td>sand + gravel</td><td></td><td></td></tr> <tr><td></td><td>37</td><td>74</td><td>3 minus gravel & 0% sand</td><td></td><td></td></tr> <tr><td></td><td>74</td><td>89</td><td>gravel & 90% sand</td><td></td><td></td></tr> <tr><td></td><td>89</td><td>111</td><td>hard pan sand trace clay</td><td></td><td></td></tr> <tr><td></td><td>111</td><td>118</td><td>flowing sand trace of clay</td><td></td><td></td></tr> <tr><td></td><td>118</td><td>147</td><td>sand</td><td></td><td></td></tr> <tr><td></td><td>147</td><td>165</td><td>brown sand trace of water</td><td></td><td></td></tr> <tr><td></td><td>165</td><td>167</td><td>blue clay 80% sand</td><td></td><td></td></tr> <tr><td></td><td>167</td><td>178</td><td>gray gravel with 1% sand & clay</td><td></td><td></td></tr> <tr><td></td><td>178</td><td>180</td><td>bluffs & 4 minus waste</td><td></td><td></td></tr> <tr><td></td><td>180</td><td>185</td><td>gravel</td><td></td><td></td></tr> <tr><td></td><td>185</td><td> </td><td>clean gravel</td><td></td><td></td></tr> </tbody> </table>	Hole Diam.	Depth		Material	Water		From	To	Yes	No	8"	0	4	top soil				4	22	bluffs 30% gravel				22	37	sand + gravel				37	74	3 minus gravel & 0% sand				74	89	gravel & 90% sand				89	111	hard pan sand trace clay				111	118	flowing sand trace of clay				118	147	sand				147	165	brown sand trace of water				165	167	blue clay 80% sand				167	178	gray gravel with 1% sand & clay				178	180	bluffs & 4 minus waste				180	185	gravel				185		clean gravel		
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<p>6. LOCATION OF WELL</p> <p>Sketch map location must agree with written location.</p>  <p>Subdivision Name _____ Lot No. _____ Block No. _____</p> <p>County <u>KOOTENAI</u> <u>NE 1/4 SE 1/4 Sec. 11, T. 50 N, R. 5 E</u></p>	<p>USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE WHITE COPY TO THE DEPARTMENT</p>																																																																																														

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JUL 7 1980

Department of Water Resources
Northern District Office

WELL DRILLER'S REPORT

T50N R05W Sec. 12 SENWNW

State law requires that this report be filed with the Director, Department of Water Resources, within 30 days after the completion or abandonment of the well. By: mciscell 2012-08-28

1. WELL OWNER

Name Thomas Holmes

Address P. O. Box 1513 CDA, Idaho 83814

Owner's Permit No. 95-79-N-68

7. WATER LEVEL

Static water level 138 feet below land surface.

Flowing? Yes No G.P.M. flow _____

Artesian closed-in pressure _____ p.s.i.

Controlled by: Valve Cap Plug

Temperature Cold OF. Quality Good

2. NATURE OF WORK

New well Deepened Replacement

Abandoned (describe method of abandoning) _____

8. WELL TEST DATA

Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
<u>50</u>	<u>—</u>	<u>1 hr.</u>

3. PROPOSED USE

Domestic Irrigation Test Municipal

Industrial Stock Waste Disposal or Injection

Other _____ (specify type)

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
<u>8</u>	<u>0</u>	<u>63</u>	<u>Gravel</u>		<u>X</u>
	<u>63</u>	<u>86</u>	<u>Sand</u>		<u>X</u>
	<u>86</u>	<u>185</u>	<u>Sand and Gravel</u>	<u>X</u>	

4. METHOD DRILLED

Rotary Air Hydraulic Reverse rotary

Cable Dug Other _____

5. WELL CONSTRUCTION

Casing schedule: Steel Concrete Other _____

Thickness	Diameter	From	To
<u>.250</u> inches	<u>6</u> inches	<u>+ 1</u> feet	<u>179</u> feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? Yes No

Was a packer or seal used? Yes No

Perforated? Yes No

How perforated? Factory Knife Torch

Size of perforation 1/16 inches by 4 inches

Number	From	To
<u>20</u> perforations	<u>169</u> feet	<u>179</u> feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? Yes No

Manufacturer's name _____

Type _____ Model No. _____

Diameter _____ Slot size _____ Set from _____ feet to _____ feet

Diameter _____ Slot size _____ Set from _____ feet to _____ feet

Gravel packed? Yes No Size of gravel _____

Placed from _____ feet to _____ feet

Surface seal depth 22 Material used in seal: Cement grout

Pudding clay Well cuttings

Sealing procedure used: Slurry pit Temp. surface casing

Overbore to seal depth

Method of joining casing: Threaded Welded Solvent Weld

Cemented between strata

Describe access port _____

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JAN 31 1980
Department of Water Resources

WET

6. LOCATION OF WELL

Sketch map location must agree with written location.

Subdivision Name Parcel 182 Govt Lot 4

Lot No. 4 Block No. _____

County Kootenai

NW 1/4 NW 1/4 Sec. 2, T. 50N N/S, R. 5W E/W.

10. Work started 10/1/79 finished 10/2/79

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Associated well Drillers Inc Firm No. 245

Address Box 723 C.D.A. Idaho Date 10/13/79

Signed by (Firm Official) [Signature]

and (Operator) Robert F. Deget



WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
 Name Harry Leonard
 Address N. 5527 Loma Dr. Spokane Wash. 99208
 Owner's Permit No. 95-77-N-55

7. WATER LEVEL
 Static water level 13 feet below land surface
 Flowing? Yes No G.P.M. flow _____
 Temperature _____ ° F. Quality _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by Valve Cap Plug

2. NATURE OF WORK
 New well Deepened Replacement
 Abandoned (describe method of abandoning)

8. WELL TEST DATA
 Pump Bailor Other Air

Discharge G.P.M.	Draw Down	Hours Pumped
<u>Approx 20</u>		

3. PROPOSED USE
 Domestic Irrigation Test Other (specify type)
 Municipal Industrial Stock Waste Disposal or Injection

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
<u>8</u>	<u>0</u>	<u>18</u>	<u>Sand, gravel, + Boulders</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>6</u>	<u>18</u>	<u>20</u>	<u>Course Sand + gravel</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. METHOD DRILLED
 Cable Rotary Dug Other

5. WELL CONSTRUCTION
 Diameter of hole 6 inches Total depth 20 feet
 Casing schedule: Steel Concrete

Thickness	Diameter	From	To
<u>1/4</u> inches	<u>6</u> inches	<u>1</u> feet	<u>20</u> feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

 Was casing drive shoe used? Yes No
 Was a packer or seal used? Yes No
 Perforated? Yes No
 How perforated? Factory Knife Torch
 Size of perforation _____ inches by _____ inches

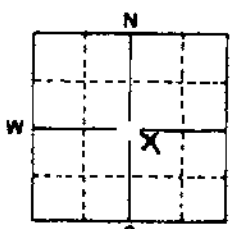
Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

 Well screen installed? Yes No
 Manufacturer's name _____
 Type _____ Model No. _____
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Gravel packed? Yes No Size of gravel _____
 Placed from _____ feet to _____ feet
 Surface seal depth 18' Material used in seal Cement grout
Bentonite Puddling clay Well cuttings
 Sealing procedure used Sherry pit Temporary surface casing
 Overbore to seal depth

RECEIVED

JUL 8 1977

Department of Water Resources
Northern District Office

6. LOCATION OF WELL
 Sketch map location must agree with written location.

 Subdivision Name Green Ferry Bay
 Lot No. 2 Block No. 1
Gov. Lot 8
 County Kootenai
NW 1/4 SE 1/4 Sec. 11, T. 50 N, R. 5 E

10. Work started 6-24-77 finished 6-24-77

11. DRILLERS CERTIFICATION
 Firm Name Enterprise Drilling Co Firm No. 302
 Address Box 404 Post Falls Idaho Date 7-2-77
 Signed by (Firm Official) [Signature]
 and
 (Operator) [Signature]

USE TYPEWRITER OR BALL POINT PEN

WELL DRILLER'S REPORT



Received 8-27-77

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name DR. Robert M. Scates
Address Harding Ave. Truck
Post Falls, Idaho
Owner's Permit No. 95-77-N-57

7. WATER LEVEL
Static water level 170 feet below land surface
Flowing? Yes No G.P.M. flow _____
Temperature _____ ° F. Quality _____
Artesian closed-in pressure _____ p.s.i.
Controlled by Valve Cap Plug

2. NATURE OF WORK
 New well Deepened Replacement
 Abandoned (describe method of abandoning)

8. WELL TEST DATA
 Pump Bailor Other
Discharge G.P.M. 30 Draw Down 0 Hours Pumped 4

3. PROPOSED USE
 Domestic Irrigation Test Other (specify type)
 Municipal Industrial Stock Waste Disposal or Injection

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
12	0	9	Gravel small & sand		/
12	9	31	Gravel sand & silt		/
12	31	50	Gravel sand & clay		/
8	50	104	Gravel sand & clay		/
	104	117	Cobble stones		/
	117	135	Red gravel & silt		/
	135	170	Gravel large & sand		/
	170	187	Gravel large washed with Red gravel		/
	187	194	Sand coarse		/
	194	200	Red gravel & coarse sand		/
	200	225	Gravel 3" minus Red gravel & coarse sand		/
	225		Gravel 3-4" minus with broken granite rock		/

4. METHOD DRILLED
 Cable Rotary Dug Other

5. WELL CONSTRUCTION
Diameter of hole 8 inches Total depth 240 feet
Casing schedule: Steel Concrete
Thickness 250 inches Diameter 8 inches From 2 feet To 240 feet
Was casing drive shoe used? Yes No
Was a packer or seal used? Yes No
Perforated? Yes No
How perforated? Factory Knife Torch
Size of perforation 1 1/2 inches by 1/2 inches
Number 110 perforations From 225 feet To 235 feet
Well screen installed? Yes No
Manufacturer's name _____ Type _____ Model No. _____
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? Yes No Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 20 Material used in seal Cement grout Pudding clay Well cuttings
Sealing procedure used Slurry pit Temporary surface casing Overbore to seal depth

6. LOCATION OF WELL
Sketch map location must agree with written location.
Subdivision Name _____
Lot No. _____ Block No. _____
County Kootenai
NW 1/4 NW 1/4 Sec. 12 T. 50 N. 8. R. 5

10. Work started June 21-1977 finished July 2 1977

11. DRILLERS CERTIFICATION
Firm Name E. R. Holman Drilling Co Firm No. 105
Address 601 S. Pines Rd Date 7/18/77
Signed by (Firm Official) [Signature]
and (Operator) [Signature]

USE TYPEWRITER OR BALL POINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
 Name Joe Murphy
 Address Greenberry Rd. Post Falls, Idaho
R# I Locard'Alene Idaho
 Owner's Permit No. _____

7. WATER LEVEL
 Static water level 160 feet below land surface
 Flowing? Yes No G.P.M. flow _____
 Temperature Cold° F. Quality _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by Valve Cap Plug

2. NATURE OF WORK 95-77-N-144
 New well Deepened Replacement
 Abandoned (describe method of abandoning)

8. WELL TEST DATA
 Pump Bailer Other AIR

Discharge G.P.M.	Draw Down	Hours Pumped
<u>10 to 12 GPM</u>		

3. PROPOSED USE
 Domestic Irrigation Test Other (specify type)
 Municipal Industrial Stock Waste Disposal or Injection

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
6	0	134	SAND		
	134	155	small GRAVEL		
	155	158	Quartz Scams		
	158	163	GRAVEL		
	163	172	GRAY SAND		
	172	174	Hard layer		
	174	180	GRAY SAND + Quartz		
	180	191	Quartz Broken		
	191	193	Quartz Scam Damp.		<input checked="" type="checkbox"/>
	193	205	Quartz		
	205	207	Black Granite seep		
	207	219	BROKEN Black & white		
	219	229	White Quartz		
	229	248	BROKEN Quartz		
	248	269	Black D.G. seep		
	269	293	White Quartz seep		
	293	311	D.G. Soft		
	311	319	Black Granite		
	319	329	BROKEN Quartz		
	329	340	Black Granite		
	340	363	White Quartz		
	363	367	Very Broken		
	367	393	White seep		
	393	397	Very Broken		
	397	397	Black Granite		
	397	429	Black & white		
	429	447	White Quartz		

4. METHOD DRILLED
 Cable Rotary Dug Other

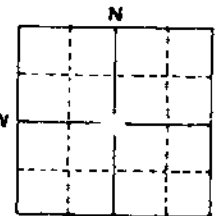
5. WELL CONSTRUCTION
 Diameter of hole 6 inches Total depth 447 feet
 Casing schedule: Steel Concrete

Thickness	Diameter	From	To
<u>.250</u> inches	<u>6</u> inches	+ <u>1</u> feet	<u>180</u> feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

 Was casing drive shoe used? Yes No
 Was a packer or seal used? Yes No
 Perforated? Yes No
 How perforated? Factory Knife Torch
 Size of perforation 7/8 inches by 12 inches

Number	From	To
<u>12</u> perforations	<u>174</u> feet	<u>179</u> feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

 Well screen installed? Yes No
 Manufacturer's name _____
 Type _____ Model No. _____
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Gravel packed? Yes No Size of gravel _____
 Placed from _____ feet to _____ feet
 Surface seal depth 18 Material used in seal Cement grout
 Pudding clay Well cuttings
 Sealing procedure used Shurry pit Temporary surface casing
 Overbore to seal depth

6. LOCATION OF WELL 95
 Sketch map location must agree with written location.

 Subdivision Name _____
 Lot No. _____ Block No. _____
 County Kootenai
NE 1/4 NE 1/4 Sec. 14, T. 50 N, R. 5 W

10. Work started 12/1/77 finished 12/15/77

11. DRILLERS CERTIFICATION
 Firm Name American Drilling Firm No. 269
 Address PO Box 14977 Spokane Date 12/17/77
 Signed by (Firm Official) B.C. Murphy
 and B.C. Murphy
 (Operator)

NOV 14 2001 WELL DRILLER'S REPORT

Location Corrected by IDWR To:
T50N R05W Sec. 12 NENW
By: mciscell 2013-05-24

IDWR/North

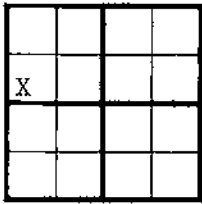
1. WELL TAG NO. D0017929

Drilling Permit No: _____
Other IDWR No. _____

2. OWNER GREEN FERRY WATER & SEWER Well Number: 330

Name GREEN FERRY WATER & SEWER
Address PO BOX 1105
City POST FALLS State ID Zip 83854

3. LOCATION OF WELL by legal description
sketch map location must agree with written location



Twp. 50N North or South
Rge. 5W East or West
E Sec. 12 SW 1/4 NW 1/4 1/4

Gov't Lot _____ County KOOTENAI

Lat: _____ Long: _____

Address of Well Site _____ City POST FALLS

(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Bik. _____ Sub. Name _____

4. USE:

- Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

5. TYPE OF WORK check all that apply (Replacement, etc.)

- New Well Modify Abandonment Other _____

6. DRILL METHOD

- Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
BENTONITE	0	20	150 GALS	OVERBORE

Was drive shoe used? Y N Shoe Depth(s) 185

Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
12	+1	185	.280	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe 5 Length of Tailpipe _____

9. PERFORATIONS/SCREENS

- Perforations Method TELESCOPING
 Screens Screen Type STAINLESS STEEL

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
185	205	40	20	12	SS	<input type="checkbox"/>	<input type="checkbox"/>
205	245	60	20	12	SS	<input type="checkbox"/>	<input type="checkbox"/>

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

150 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 200 ft. Describe access port or control devices: _____

11. WELL TESTS:

- Pump Bailor Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
800+			1 HR

Water Temp. COLD Bottom Hole Temp COLD

Water Quality test or comments: CLEAR

Depth first Water encountered 200

12. LITHOLOGIC LOG:(Describe repairs or abandonment)

Bore Diam.	From	To	Remarks: Lithology, Water Quality, Temperature	Water	
				Y	N
16	0	32	Soil w/Cobble & Gravel	<input type="checkbox"/>	<input type="checkbox"/>
12	32	78	Sand & Gravel	<input type="checkbox"/>	<input type="checkbox"/>
12	78	103	Sand & Gravel w/ Cobble	<input type="checkbox"/>	<input type="checkbox"/>
12	103	245	Sand Course w/small Gravel 3/8 minus	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Completed Depth 245 (Measurable)
Date: Started 10/15/01 Completed 10/28/01

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name 1370 WellService, Inc Firm No. 448
Firm Official [Signature] Date 11-07-01
and
Supervisor or Operator [Signature] Date 11-6-01
(Sign Once if Firm Official and Operator)

Louie Hanner

WELL DRILLER'S REPORT

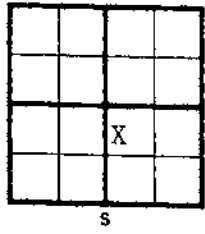
RECEIVED

Office Use Only		
Inspected by		
Twp	Rge	Sec
1/4	1/4	1/4
Lat	Long	

1. WELL TAG NO. D0022180
 Drilling Permit No: 776165
 Other IDWR No. _____

2. OWNER
 Name JIM LAWRENCE Well Number: 378
 Address P.O. BOX 3272
 City HAYDEN State ID Zip 83835

3. LOCATION OF WELL by legal description
 sketch map location must agree with written location



Twp. 50N North or South
 Rge. 5W East or West
 Sec. 11 NW 1/4 SE 1/4 1/4

Gov't Lot _____ County KOOTENAI
 Lat: _____ Long: _____
 Address of Well Site SNOW SHOE RD.
 City POST FALLS

(Give at least name of road + Distance to Road or Landmark)
 Lt. 1 Blk. _____ Sub. Name _____

4. USE:
 Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

5. TYPE OF WORK check all that apply (Replacement, etc.)
 New Well Modify Abandonment Other _____

6. DRILL METHOD
 Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK		AMOUNT		METHOD
Material	From To	Sacks or Pounds		
BENTONITE	0 20	8 BAGS		OVERBORE

Was drive shoe used? Y N Shoe Depth(s) _____
 Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	117	.250	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	-100	180	.160	PVC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
 Perforations Method DRILL
 Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
-160	180	1/2 X 6	80	4	PVC	<input type="checkbox"/>	<input checked="" type="checkbox"/>

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
100 ft. below ground Artesian pressure _____ lb.
 Depth flow encountered 130 ft. Describe access port or control devices: _____

11. WELL TESTS:
 Pump Bailor Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
10			1 HR

Water Temp. COLD Bottom Hole Temp. COLD
 Water Quality test or comments: GOOD
 Depth first Water encountered 130



12. LITHOLOGIC LOG:(Describe repairs or abandonment)

Bore Diam	From	To	Remarks: Lithology, Water Quality, Temperature	Water	
				Y	N
8	0	117	Sand & Boulders	<input type="checkbox"/>	<input type="checkbox"/>
6	117	128	Granite Black & Copper	<input type="checkbox"/>	<input type="checkbox"/>
6	128	135	Granite Salt & Pepper w/ apx. 5 gpm	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	135	170	Granite Salt & Pepper	<input type="checkbox"/>	<input type="checkbox"/>
6	170	180	Granite Salt & Pepper w/ Apx. 5 gpm.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Completed Depth 180 (Measurable)
 Date: Started 4/16/02 Completed 4/17/02

13. DRILLER'S CERTIFICATION
 I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
 Firm Name H2O WellService Inc. Firm No. 448
 Firm Official [Signature] Date 4-19-02
 and
 Supervisor or Operator [Signature] Date 4-17-02
 (Sign Once if Firm Official and Operator)

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only		
Inspected by _____	_____	
Twp _____	Rge _____	Sec _____
1/4 _____	1/4 _____	1/4 _____
Lat: _____	Long: _____	

1. WELL TAG NO. D0033526
Drilling Permit No: 811388
Other IDWR No. _____

2. OWNER **Well Number:**
Name Barnhart, Harley 726
Address 9427E. Marine drive
City Post Falls State ID Zip 83854



3. LOCATION OF WELL by legal description
sketch map location must agree with written location

N		Twp. <u>50</u>	<input checked="" type="checkbox"/> North or	South
E		Rge. <u>5</u>	East or	<input checked="" type="checkbox"/> West
S		Sec. <u>12</u>	<u>1/4 NW 1/4 NW 1/4</u>	
W		Gov't Lot _____	County <u>KOOTENAI</u>	
		Lat: _____	Long: _____	
Address of Well Site <u>9427 E. Marine Drive</u> City <u>Post Falls</u>				

(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
 Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

5. TYPE OF WORK check all that apply (Replacement, etc.)
 New Well Modify Abandonment Other _____

6. DRILL METHOD
 Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	20	450 lbs	Overbore

Was drive shoe used? Y N Shoe Depth(s) _____
Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:
Diameter From To Gauge Materi Casing Liner Welded Threaded
6 2 213 250 STEEL

Length of Headpipe 8 Length of Tailpipe _____

9. PERFORATIONS/SCREENS
 Perforations Method _____
 Screens Screen Type Stainless steel
From To Slot Size Number Diameter Material Casing Liner
213 218 20 1 6 S.S. _____

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
155 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

50N 5W 12

11. WELL TESTS:
 Pump Bailer Air Flowing Artesian
Yield gal./min. 30+ Drawdown 100 Pumping Level 218 Time 1HR

Water Temp. COLD Bottom Hole Temp. COLD
Water Quality test or comments: GOOD
Depth first Water encountered 160

12. LITHOLOGIC LOG:(Describe repairs or abandonment)

Bore Diam	From	To	Remarks: Lithology, Water Quality, Temperature	Water	
				Y	N
8	0	36	SOIL W/GRAVEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	36	72	SAND, GRAVEL, W/COBBLE, CLA	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	72	81	LARGE GRAVEL & SAND	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	81	83	BOULDER	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	83	170	SAND & GRAVEL W/WATER	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	170	220	SAND COURSE W/GRAVEL W/WA	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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MAR 17 2004
IDWR/North

Completed Depth 218 (Measurable)
Date Started 3/8/04 Completed 3/9/04

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name H2O Well Service, Inc. Firm No. 448
Firm Official [Signature] Date 03/12/04
and
Supervisor or Operator [Signature] Date 03/11/04
(Sign Once if Firm Official and Operator)
Louie Hanner

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

Office Use Only		
Inspected by _____		
Twp _____	Rge _____	Sec _____
1/4	1/4	1/4
Lat: : : _____	Long: : : _____	

1. WELL TAG NO. D0054492
 DRILLING PERMIT NO 851579
 Other IDWR No. _____

2. OWNER:
 Name James Long
 Address 17418 SE 106th St
 City Renton State Wa Zip 98059

3. LOCATION OF WELL by legal description:

N	Twp <u>50N</u>	North <input checked="" type="checkbox"/> or	South <input type="checkbox"/>	
W	Rge <u>05W</u>	East <input type="checkbox"/> or	West <input checked="" type="checkbox"/>	
E	Sec <u>11</u>	1/4 SE 1/4 SE 1/4		
S		10 Ac 40 Ac 160 Ac		
	Gov't Lot _____	County <u>Kootenai</u>		
	Lat <u>47:41:14</u>	Lor <u>116:55:06</u>		

Address of Well Site: (see next line) _____
 greens ferry _____ City post falls _____
 Lot _____ Blk _____ Sub. Name (see next line) _____

11. WELL TESTS
 Pump Bailor Air Flowing Artesian

Yield gal./min.	Drawdown	Pump Level	Time
15 TO 18	100%	300	2HRS

Water Temp. COLD Bottom hole temp. COLD
 Water Quality test or comments: (below) CLEAR Depth first Water Encountered 203

12. LITHOLOGIC LOG (Describe repairs or abandonment)

Bore Diam	From	To	Remarks: Lithology, Water Quality and Temperature	Water	
				Y	N
8	0	130	SAND	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	130	140	DEC GRANIT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	140	203	DEC BROKEN GRANIT 4 TO 5 AT 203	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	203	300	BROKEN FRACTERED GRANIT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			3 AT 210 4 AT 240 6 AT 380	<input type="checkbox"/>	<input type="checkbox"/>

4. USE:
 Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
 New Well Modify Abandonment Other _____

6. DRILL METHOD
 Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			Amount	Method
Material	From	To	Sacks/Lbs	
BENTONITE	0	30	12 SACKS	DRY POOR

Drive Shoe Used? Y N Shoe Depth(s) _____
 Drive Shoe Seal Tested? Y N How? _____

8. CASING/LINER

Diam	From	To	Gauge	Material	Casng	Liner	Weld	Thrded
6	+2	140	0.250	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	100	300	0.200	PVC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Length Headpipe N/A Length Tailpipe N/A

9. PERFORATIONS/SCREENS
 Perforations? Method drill
 Screens? Screen Type _____

	Material	Casng	Liner
--- 300 3/8 250 3/8	PVC	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

10. STATIC WATER LEVEL or ARTESIAN PRESSURE
140 ft. below ground. Artesian pressure 0 lb.
 Depth flow encountered 203 ft. Describe access port or control devices: CAP WELDED

50N 05W 11

RECEIVED

MAY 30 2008

IDWR/North

Completed Depth 300 (Measurable)
 Date: Started 5/19/2008 Completed 5/20/2008

13. DRILLERS CERTIFICATION
 I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name United Drilling Inc. Firm No 414
 Firm Official Timothy R. Volking p.m.s. Date 5/19/2008
 Supervisor or Operator Timothy R. Volking Date 5/19/2008



ATTACHMENT C

WELL BORING LOGS



BORING LOG

Drill Rig: TSi 150CC Date Drilled: April 14, 2021 Logged By:
 Boring Dia: 6 Inches Boring Number: Well A K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
	Soil				Topsoil (wet)
	GC				Yellowish-red clayey GRAVEL. Coarse to fine gravel with coarse sand. Med. dense.
5	SM		5		Brown silty SAND with silt. Coarse to fine sand. Loose dry.
10	SM		10		Light brown SAND with silt and trace gravel. Coarse to fine sand. Fine to coarse gravel. Loose dry.
15	GC		15		Brown clayey GRAVEL with sand. Coarse to fine rounded to subrounded gravel. Coarse sand. Loose.
20	GC		20		Light brown silty GRAVEL with sand and cobbles. Coarse to fine round to subround sand. Coarse sand. Cobbles >3 inches, appear subround. Loose to medium dense.
25	GC		25		Dark brown clayey GRAVEL with sand. Coarse to fine gravel. Coarse sand. Damp. Medium dense.
30	GM		30		Brown sandy GRAVEL with silt. Fine gravel (trace coarse cobble). Medium coarse sand. Subround to round sands/gravels. Loose
35			35		

Completion Notes:

Site:

Bayshore Estates L2 NPE
 S Greensferry Rd
 Coeur d'Alene, ID 83814



BORING LOG

Drill Rig: TSi 150CC Date Drilled: April 14, 2021 Logged By:
 Boring Dia: 6 Inches Boring Number: Well A K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
	SW				Gravel zone Brown gravelly SAND trace silt. Medium to fine sand. Fine subround gravel. Loose to medium dense.
45	GC		45		Dark brown clayey GRAVEL with sand. Coarse to fine subround to round gravel. Coarse to fine sand. Dense to very dense.
50	SM		50		Brown gravelly SAND with trace silt. Dense to very dense. Fine to coarse subround gravel. Trace subround cobble.
55	SP		55		Dark brown SAND trace gravel. Medium to coarse sand. Fine to coarse gravel. Dense. Damp.
60	GM		60		Brown sandy GRAVEL with silt. Fine to coarse subround gravel. Fine to coarse sand.
65	SP		65		Dark brown SAND, trace gravel
70	SM		70		Dark brown SAND with silt/clay and trace coarse gravel.
75	GM		75		Brown sandy GRAVEL with silt. fine to coarse round to subround gravel. Medium to coarse sand. Trace fine sand/silt.

Completion Notes:

Site:

Bayshore Estates L2 NPE
 S Greensferry Rd
 Coeur d'Alene, ID 83814



BORING LOG

Drill Rig: TSi 150CC Date Drilled: April 14, 2021 Logged By:
 Boring Dia: 6 Inches Boring Number: Well A K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
					Dense. Brown silty SAND trace fine gravel.
85	SM		85		Dark brown SAND fine to medium. Medium dense.
90	SP		90		Brown silty SAND with fine gravel. Hard stratified layer near bottom of run.
95	SM		95		
100			100		
105	SC		105		Coarse layer Brown clayey SAND trace fine gravel. Sense stratified clay layers within sand.
110	SP		110		Brown SAND with silt. Coarse to medium sand. Dense.
115	SM		115		Dark brown silty SAND. Fine to medium sand. Dense. Moist.
	ML				Dark brown SILT with subround fine sand. Moist.
					Dark brown clayey SAND, with silt. Most. Very dense.

Completion Notes:

Site:

Bayshore Estates L2 NPE
 S Greensferry Rd
 Coeur d'Alene, ID 83814



BORING LOG

Drill Rig: TSi 150CC Date Drilled: April 14, 2021 Logged By:
 Boring Dia: 6 Inches Boring Number: Well A K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
125	SC		125		
	SP				Brown SAND, medium to coarse sand.
	ML		130		Brown clayey SILT. Trace fine sand. Medium stiff to stiff. Most. Non-plastic.
130	SP				Brown SAND trace silt, dense, moist. Medium to coarse sand.
135					
	SM		140		Dark brown silty SAND. Fine to medium sand. Dense.
140					
	SP		145		Dark brown SAND trace silt. Moist. Dense occasionally. Silt/clay seam. Fine sand -> fine to medium sand -> medium sand -> medium/coarse sand -> coarse sand.
145					
	ML		150		Brown SILT. Dense. Stiff. Non-plastic. No to low dry strength. Grades to brown silty CLAY.
150	SP				Dark brown SAND. Coarse sand, dense.
	ML				Brown SILT. Dense. Stiff.
	SP				Dark brown SAND. Coarse sand, dense.
155	ML		155		Brown silt. Dense. Stiff.
	SP				Dark brown SAND. Coarse sand, dense.
	ML				Gray SILT trace clay. Non-plastic. Rapid dilatancy. Dense.

Completion Notes:

Site:

Bayshore Estates L2 NPE
 S Greensferry Rd
 Coeur d'Alene, ID 83814

Project No: LCE-2021-002

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BORING LOG

Drill Rig: TSi 150CC Date Drilled: April 14, 2021 Logged By:
 Boring Dia: 6 Inches Boring Number: Well A K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
	SP				Dark brown SAND. medium to coarse sand. Wet. Dense.
165	SP		165		Dark brown SAND, medium to coarse. Dense.
170	SP		170		Dark brown SAND with silt. Coarse to medium sand. Dense. Wet. Very thin depositional bedding as laminations of coarse/medium/fine sands.
175	SP		175		
180	SM		180		Dark brown silty SAND. Fine to medium sand. Very dense. Grades to medium.
185	SM		185		Dark brown silty SAND or sandy CLAY/SILT. Medium to coarse sand. Dense.
	GC				Dark brown clayey GRAVEL with sand. Coarse subround gravel, medium to coarse sand.
190			190		
195			195		

Completion Notes:

Site:

Bayshore Estates L2 NPE
 S Greensferry Rd
 Coeur d'Alene, ID 83814



BORING LOG

Drill Rig: Ferrasonic TSi 150CC

Date Drilled: April 16, 2021

Logged By:

Boring Dia: 6 Inches

Boring Number: Well B

K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
	Soil				Topsoil. Dry.
5	GM		5		Yellowish-red silty/sand GRAVEL. Fine to coarse gravel, round to subround. Medium to fine sand. Trace subround cobbles. Dense.
10	SW		10		Yellowish-red gravelly SAND with silt. Fine to coarse subround gravel. Medium to coarse sand. Dry. Loose.
15	SP		15		Dark brown SAND with gravel and silts. Coarse sand with medium sand. Fine subround gravels. Loose.
20	GM		20		Dark brown silty/clayey GRAVEL with sand. Fine subround gravels. Coarse sands. Very thinly bedded/stratified. Very dense. Increasing gravel size (coarse) with subround cobbles.
30	GM		30		Light brown , light gray to gray sandy GRAVEL with silt. Fine (predominant) to coarse subround gravel. Medium to coarse sand predominant. Loose. (With cobbles starting at 37).
35	GM		35		

Completion Notes:

Site:

Bayshore Estates L2 NPE
S Greensferry Rd
Coeur d'Alene, ID 83814

Project No: LCE-2021-002

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BORING LOG

Drill Rig: Ferrasonic TSi 150CC

Date Drilled: April 16, 2021

Logged By:

Boring Dia: 6 Inches

Boring Number: Well B

K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
45			45		
50			50		
55	SW		55		Light grey/brown gravelly SAND with silt. Medium to coarse sand. Fine, subround gravel. Loose.
60	GP		60		Light grey/brown sandy GRAVEL trace silt. Fine to coarse subround gravel. Fine to coarse sand. Loose.
65	SM		65		Dark brown silty SAND with gravel. Fine subround gravel. Fine to coarse sand. Medium dense to dense. Occasionally stratified predominant. Silt seam.
70	GM		70		Brown sandy GRAVEL with silt. Fine to coarse subround gravel. Medium to coarse sand. Loose -> medium dense.
75	SM		75		Dark brown silty SAND predominantly fine sand. Trace medium/coarse sand. Frequent silt seams. Dense.
	GM				Brown sandy GRAVEL with silt. Fine to coarse gravel subround. Medium to coarse sand. Medium dense.
	SM				Dark brown silty SAND. As above.

Completion Notes:

Site:

Bayshore Estates L2 NPE
S Greensferry Rd
Coeur d'Alene, ID 83814

Project No: LCE-2021-002

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BORING LOG

Drill Rig: Ferrasonic TSi 150CC

Date Drilled: April 16, 2021

Logged By:

Boring Dia: 6 Inches

Boring Number: Well B

K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
85	GM		85		Brown silty/clayey GRAVEL. Fien to coarse subround to round gravels. Very dense.
	SM				Dark brown silty SAND. As above.
	SP				Dark brown SAND with silt. Coarse to medium sand. Medium dense. Trace fine gravel.
90	SM		90		Dark brown silty SAND. As above.
	GM				Brown silty GRAVEL. Fine subround to round gravels. Fine sand.
95			95		Dark brown silty SAND. Fine sand. Frequent silt seams. Dense.
100	SM		100		
105			105		
110			110		
	SM				Dark brown silty SAND/sandy SILT. Fine to medium sand. Dense with coarse sand.
115			115		Dark brown silty SAND. Fine to medium sand. Frequent silt seams. Weakly stratified gradation.

Completion Notes:

Site:

Bayshore Estates L2 NPE
S Greensferry Rd
Coeur d'Alene, ID 83814

Project No: LCE-2021-002

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BORING LOG

Drill Rig: Ferrasonic TSi 150CC

Date Drilled: April 16, 2021

Logged By:

Boring Dia: 6 Inches

Boring Number: Well B

K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
	CL				Brown silty CLAY. Stiff. Low to medium plastic. Medium tough, no dilatancy.
125	SW		125		Dark brown SAND with trace silt. Medium to fine sand. Occasional laminated silt seam. Medium dense.
130			130		
135	CL		135		Brown silty CLAY. Medium plastic. Stiff.
140	SW		140		Dark brown SAND with trace silt. As above.
145	CL		145		Brown silty CLAY. Medium plastic. No dilatancy. Medium tough. Stiff. Coarse sand layer @ 145.
150	SP		150		Greenish-grey SAND. Medium to fine sand. Trace silt.
150	CL		150		Greenish-grey CLAY with silt. Low to medium plastic. No dilatancy. Medium tough. Medium stiff.
150	SP		150		Greenish-grey SAND. Coarse.
155	ML		155		Greenish-grey SILT with clay. Rapid dilatancy. Nonplastic. Stiff. Occasional seams of coarse sand.
					Olive grey silty SAND. Fine sand. Medium dense. Trace

Completion Notes:

Site:

Bayshore Estates L2 NPE
S Greensferry Rd
Coeur d'Alene, ID 83814

Project No: LCE-2021-002

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BORING LOG

Drill Rig: Ferrasonic TSi 150CC

Date Drilled: April 16, 2021

Logged By:

Boring Dia: 6 Inches

Boring Number: Well B

K. Freeman

Depth	USCS Class	Completion	Depth Feet	Lithology	Description
	SM				clay?
165	SP		165		Dark brown SAND trace silt. Medium to coarse sand. Medium dense.
170	GC		170		Dark brown clayey GRAVEL with sand. Coarse round to subround gravel. Coarse sand. Occasional cobble (granite).
	SM				Olive grey silty SAND. Fine sand. Dense.
175	SP		175		Olive grey SAND. Trace silt. Medium to coarse sand. Trace silt. Medium dense.
	GC				Dark brown clayey GRAVEL with sand. Coarse sand. Fine to coarse gravels. Frequent round cobbles.
180			180		
185			185		
190			190		
195			195		

Completion Notes:

Site:

Bayshore Estates L2 NPE
S Greensferry Rd
Coeur d'Alene, ID 83814

Project No: LCE-2021-002

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ATTACHMENT D

CERTIFIED ANALYTICAL REPORTS

ANALYTICAL REPORT

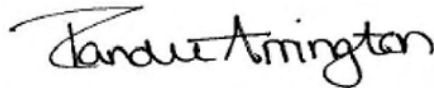
Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-15031-1
Client Project/Site: Bayshore

For:

Inland Earth Sciences Corporation
8704 E. Dalton Ave
Spokane, Washington 99212

Attn: Kevin Freeman



*Authorized for release by:
5/12/2021 3:10:16 PM*

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@Eurofinset.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Chain of Custody	14
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Case Narrative

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Job ID: 590-15031-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt

The samples were received on 4/28/2021 2:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.2° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Sample Summary

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-15031-1	A-20210428	Water	04/28/21 11:00	04/28/21 14:35	
590-15031-2	B-20210428	Water	04/28/21 13:00	04/28/21 14:35	

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Definitions/Glossary

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Client Sample ID: A-20210428

Lab Sample ID: 590-15031-1

Date Collected: 04/28/21 11:00

Matrix: Water

Date Received: 04/28/21 14:35

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.70		0.20		mg/L			04/28/21 17:00	1
Nitrite as N	ND		0.20		mg/L			04/28/21 17:00	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	25000		200		ug/L		05/07/21 08:54	05/04/21 22:07	1
Iron	ND		100		ug/L		05/07/21 08:54	05/04/21 22:07	1
Magnesium	4500		200		ug/L		05/07/21 08:54	05/04/21 22:07	1
Potassium	ND		3000		ug/L		05/07/21 08:54	05/04/21 22:07	1
SiO2, Silica	16000		11000		ug/L		05/07/21 08:54	05/05/21 16:01	10
Sodium	ND		5000		ug/L		05/07/21 08:54	05/04/21 22:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20		mg/L			05/11/21 16:05	1
Chloride	3.8		1.5		mg/L			05/11/21 16:05	1
Sulfate	4.0		1.5		mg/L			05/11/21 16:05	1
Bicarbonate Alkalinity as CaCO3	95		20		mg/L			05/12/21 12:18	1
Carbonate Alkalinity as CaCO3	ND		20		mg/L			05/12/21 12:18	1
Total Suspended Solids	ND		10		mg/L			05/04/21 11:00	1
Phosphorus, Total	0.078		0.060		mg/L			05/12/21 12:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.1		SU			05/04/21 15:10	1

Client Sample ID: B-20210428

Lab Sample ID: 590-15031-2

Date Collected: 04/28/21 13:00

Matrix: Water

Date Received: 04/28/21 14:35

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.35		0.20		mg/L			04/28/21 17:11	1
Nitrite as N	ND		0.20		mg/L			04/28/21 17:11	1

QC Sample Results

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-31431/1003
Matrix: Water
Analysis Batch: 31431

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			04/28/21 11:21	1
Nitrite as N	ND		0.20		mg/L			04/28/21 11:21	1

Lab Sample ID: LCS 590-31431/1004
Matrix: Water
Analysis Batch: 31431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.00		mg/L		100	90 - 110
Nitrite as N	5.00	4.95		mg/L		99	90 - 110

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 280-534531/1-A
Matrix: Water
Analysis Batch: 534963

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 534531

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200		ug/L		05/07/21 08:54	05/04/21 20:16	1
Iron	ND		100		ug/L		05/07/21 08:54	05/04/21 20:16	1
Magnesium	ND		200		ug/L		05/07/21 08:54	05/04/21 20:16	1
Potassium	ND		3000		ug/L		05/07/21 08:54	05/04/21 20:16	1
SiO2, Silica	ND		1100		ug/L		05/07/21 08:54	05/04/21 20:16	1
Sodium	ND		5000		ug/L		05/07/21 08:54	05/04/21 20:16	1

Lab Sample ID: LCS 280-534531/2-A
Matrix: Water
Analysis Batch: 534963

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 534531

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	52600		ug/L		105	90 - 111
Iron	10000	10400		ug/L		104	85 - 115
Magnesium	50000	52500		ug/L		105	90 - 113
Potassium	50000	52300		ug/L		105	89 - 114
SiO2, Silica	4280	4580		ug/L		107	85 - 115
Sodium	50000	52600		ug/L		105	90 - 115

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-356373/45
Matrix: Water
Analysis Batch: 356373

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20		mg/L			05/12/21 10:12	1
Chloride	ND		1.5		mg/L			05/12/21 10:12	1
Sulfate	ND		1.5		mg/L			05/12/21 10:12	1

QC Sample Results

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 580-356373/40
Matrix: Water
Analysis Batch: 356373

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.06		mg/L		101	90 - 110
Chloride	50.0	53.4		mg/L		107	90 - 110
Sulfate	50.0	45.2		mg/L		90	90 - 110

Lab Sample ID: LCSD 580-356373/48
Matrix: Water
Analysis Batch: 356373

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.08		mg/L		102	90 - 110	0	15
Chloride	50.0	53.1		mg/L		106	90 - 110	1	15
Sulfate	50.0	52.7		mg/L		105	90 - 110	15	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-31588/1
Matrix: Water
Analysis Batch: 31588

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		20		mg/L			05/12/21 12:18	1
Carbonate Alkalinity as CaCO3	ND		20		mg/L			05/12/21 12:18	1

Lab Sample ID: LCS 590-31588/2
Matrix: Water
Analysis Batch: 31588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	501	500		mg/L		100	90 - 110

Lab Sample ID: 590-15031-1 DU
Matrix: Water
Analysis Batch: 31588

Client Sample ID: A-20210428
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	95		100		mg/L		5	10
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 590-31476/1
Matrix: Water
Analysis Batch: 31476

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			05/04/21 11:00	1

QC Sample Results

Client: Inland Earth Sciences Corporation
 Project/Site: Bayshore

Job ID: 590-15031-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 590-31476/2
 Matrix: Water
 Analysis Batch: 31476

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	206	219		mg/L		107	80 - 120

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 590-31484/1
 Matrix: Water
 Analysis Batch: 31484

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.1		SU		101	98.6 - 101.4

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 590-31589/8
 Matrix: Water
 Analysis Batch: 31589

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus, Total	ND		0.060		mg/L			05/12/21 12:19	1

Lab Sample ID: LCS 590-31589/7
 Matrix: Water
 Analysis Batch: 31589

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus, Total	0.500	0.505		mg/L		101	90 - 110

Lab Sample ID: 590-15031-1 DU
 Matrix: Water
 Analysis Batch: 31589

Client Sample ID: A-20210428
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Phosphorus, Total	0.078		0.0800		mg/L		2	20

Lab Chronicle

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Client Sample ID: A-20210428

Lab Sample ID: 590-15031-1

Date Collected: 04/28/21 11:00

Matrix: Water

Date Received: 04/28/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			31431	04/28/21 17:00	NMI	TAL SPK
Total Recoverable	Analysis	200.7 Rev 4.4		1			534963	05/04/21 22:07	LMT	TAL DEN
Total Recoverable	Prep	200.7			50 mL	50 mL	534531	05/07/21 08:54	MAB	TAL DEN
Total Recoverable	Analysis	200.7 Rev 4.4		10			535220	05/05/21 16:01	LMT	TAL DEN
Total Recoverable	Prep	200.7			50 mL	50 mL	534531	05/07/21 08:54	MAB	TAL DEN
Total/NA	Analysis	300.0		1	5 mL	5 mL	356373	05/11/21 16:05	AAC	TAL SEA
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	31588	05/12/21 12:18	AMB	TAL SPK
Total/NA	Analysis	SM 2540D		1	100 mL	100 mL	31476	05/04/21 11:00	AMB	TAL SPK
Total/NA	Analysis	SM 4500 H+ B		1			31484	05/04/21 15:10	AMB	TAL SPK
Total/NA	Analysis	SM 4500 P E		1	5 mL	5 mL	31589	05/12/21 12:19	AMB	TAL SPK

Client Sample ID: B-20210428

Lab Sample ID: 590-15031-2

Date Collected: 04/28/21 13:00

Matrix: Water

Date Received: 04/28/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			31431	04/28/21 17:11	NMI	TAL SPK

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = Eurofins FGS, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Inland Earth Sciences Corporation
 Project/Site: Bayshore

Job ID: 590-15031-1

Laboratory: Eurofins TestAmerica, Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-22
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3

Laboratory: Eurofins FGS, Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-21

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-21
A2LA	ISO/IEC 17025	2907.01	10-31-21
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-28-22
Arizona	State	AZ0713	12-21-21
Arkansas DEQ	State	19-047-0	06-01-21
California	State	2513	01-08-22
Connecticut	State	PH-0686	11-30-22
Florida	NELAP	E87667-57	07-01-21
Georgia	State	4025-011	01-08-22
Illinois	NELAP	2000172019-1	04-30-21 *
Iowa	State	IA#370	12-02-21
Kansas	NELAP	E-10166	04-30-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-21
Minnesota	NELAP	1788752	12-31-21
Nevada	State	CO000262020-1	07-31-21
New Hampshire	NELAP	205319	04-29-22
New Jersey	NELAP	190002	06-30-21
New York	NELAP	59923	04-01-22
North Carolina (WW/SW)	State	358	12-31-21
North Dakota	State	R-034	01-08-22
Oklahoma	State	2018-006	09-01-21
Oregon	NELAP	4025-011	01-08-22
Pennsylvania	NELAP	013	07-31-21
South Carolina	State	72002001	01-08-22
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-20-18	09-30-21
US Fish & Wildlife	US Federal Programs	058448	08-01-21
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-21
Virginia	NELAP	10490	06-14-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Spokane

Accreditation/Certification Summary

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Laboratory: Eurofins TestAmerica, Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
Washington	State	C583-19	08-03-21
West Virginia DEP	State	354	11-30-21
Wisconsin	State	999615430	08-31-21
Wyoming (UST)	A2LA	2907.01	10-31-21

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Method Summary

Client: Inland Earth Sciences Corporation
Project/Site: Bayshore

Job ID: 590-15031-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
200.7 Rev 4.4	Metals (ICP)	EPA	TAL DEN
300.0	Anions, Ion Chromatography	MCAWW	TAL SEA
SM 2320B	Alkalinity	SM	TAL SPK
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL SPK
SM 4500 H+ B	pH	SM	TAL SPK
SM 4500 P E	Phosphorus	SM	TAL SPK
200.7	Preparation, Total Recoverable Metals	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.


SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = Eurofins FGS, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Client Information		Client Contact: Kevin Freeman	Phone: 509-981-4747	Lab P.M.: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6435-1912.1
Company: Inland Earth Sciences Corporation		Address: 8704 E. Dalton Ave	City: Spokane	State of Origin:	Job #:	KE-2021-01
State Zip: WA, 99212		TAT Requested (days): 10 days	Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	Analysis Requested:	Page: 1 of 1	
Project Name: Bayshore		Project #: 59002144	SSOW#:	Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/>	Perform M3300 (Yes or No): <input checked="" type="checkbox"/>	Preservation Codes:
Email: kfreeman@inlandearth.com		PO #:	Purchase Order not required	300_ORGMS - Nitrate & Nitrite	200.7 - Ca, Fe, K, Mg, Na, Silica	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amehlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA Other:
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wet/dry, Sealed, Open/dry)	M - Hexane N - None O - ASN2O2 P - N2O4S Q - N2SO3 R - N2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)
A - 20210428	4/28/21	G	1300	G	Water	
B - 20210428	4/28/21	G		G	Water	
<p>Possible Hazard Identification</p> <p><input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) IV</p> <p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: _____ Date/Time: 4/29/21 1435 Company: IES</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:</p>						
<p>Special Instructions/Note:</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/QC Requirements:</p> <p>590-15031 Chain of Custody</p> 						
<p>Received by: _____ Date/Time: 4/29/21 1435 Company: IES</p> <p>Received by: _____ Date/Time: 4/29/21 1435 Company: IES</p> <p>Cooler Temperature(s) °C and Other Remarks: 35-43.2°C</p>						

Eurolfins TestAmerica, Spokane

11922 East 1st Ave
 Spokane, WA 99206
 Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record



Environment Testing
 America



Client Information (Sub Contract Lab)		Sampler: Lab PM: Carrier Tracking No(s):	
Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc.		Arlington, Randee E 590-5946.1	
Address: 4955 Yarrow Street, City: Anvada, State: Zip: CO, 80002		State of Origin: Washington Page: Page 1 of 1	
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		Job #: 590-15031-1	
Email: _____		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - Di Water K - EDTA L - EDA Other: _____	
Due Date Requested: 5/11/2021		Analysis Requested: _____	
TAT Requested (days): _____		Total Number of Containers: _____	
PO #: _____		Perform MSMSD (Yes or No) _____	
WO #: _____		Field Filtered Sample (Yes or No) _____	
Project #: 59002144		200.T/200.7.P.TR Ca, Fe, K, Mg, Na, Silica _____ X	
Site: _____		Preservation Code: _____	
Sample Date: 4/28/21		Sample Time: 11:00 Pacific	
Sample Time: 11:00 Pacific		Matrix (W=water, S=solid, O=wastefoil, BT=bottom, A=sk) _____	
Sample Type (C=Comp, G=grab) _____		Sample Date: _____	
Sample Date: _____		Sample Time: _____	

Note: Since laboratory accreditations are subject to change, Eurolfins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurolfins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurolfins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurolfins TestAmerica.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Time: _____ Date: _____ Method of Shipment: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements: _____

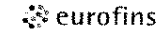
Relinquished by: <u>Wan...</u>	Date/Time: 4/28/21 15:34	Company: _____
Relinquished by: _____	Date/Time: _____	Company: _____
Relinquished by: _____	Date/Time: _____	Company: _____
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Custody Seal No.: _____	Cooling temperatures and other Remarks: _____



Eurofins TestAmerica, Spokane

11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record



Environment Testing
America

Client Information (Sub Contract Lab)				Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Shipping/Receiving				Phone:		Arrington, Randee E		E-Mail:		590-5949.1	
Company: Eurofins Frontier Global Sciences LLC				Address: 5755 8th Street East, City: Tacoma State, Zip: WA, 98424		Accreditations Required (See note): State Program - Washington		State of Origin: Washington		Page: Page 1 of 1	
Project Name: Bayshore				Due Date Requested: 5/11/2021		Job #: 590-15031-1		TAT Requested (days):		Preservation Codes:	
Site:				PO #:		Analysis Requested		WO #:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Project #: 59002144				SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
Sample Identification - Client ID (Lab ID)				Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	
A-20210428 (590-15031-1)				4/28/21		11:00 Pacific		Water		X	
Special Instructions/Note:				Preservation Code:		X		X		1	
<p>Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.</p>											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:			
Relinquished by: <i>Maria Crode</i>				Date/Time: <i>4/29/21 15:00</i>		Company: <i>7ASPO</i>		Received by: <i>[Signature]</i>		Date/Time: <i>4/30/21 0940</i>	
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					

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Eurofins TestAmerica, Spokane

11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record



Environment Testing
America

Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving		Sampler: Lab PM: Carrier Tracking No(s): COC No:		Arrington, Randee E Arrington, Randee E 590-5973.1		Page: Page 1 of 1				
Company: Eurofins Frontier Global Sciences LLC		Accreditations Required (See note): State Program - Washington		Job #: 590-15031-1		Preservation Codes:				
Address: 5755 8th Street East, City: Tacoma		Due Date Requested: 5/11/2021 TAT Requested (days):		Analysis Requested				A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:		
State, Zip: WA, 98424		PO #:								
Phone: 253-922-2310(Tel) 425-420-9210(Fax)		WO #:								
Email:		Project #: 59002144								
Project Name: Bayshore		SSOW#:								
Site:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 300.0_28D/ (MOD) Chloride, Fluoride & Sulfate								
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, Seawater, Oilwaste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D/ (MOD) Chloride, Fluoride & Sulfate	Total Number of containers	Special Instructions/Note:
A-20210428 (590-15031-1)		4/28/21	11:00 Pacific		Water		X		1	
<p>Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.</p>										
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Primary Deliverable Rank: 2					Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:			
Relinquished by: <i>Mchawoo</i>			Date/Time: <i>5/11/21 15:30</i>		Company: <i>TA</i>		Received by: <i>Tammy</i>		Date/Time: <i>5/11/21 0945</i>	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: Δ Yes Δ No			Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <i>A2 0.7/0.8</i>			

Login Sample Receipt Checklist

Client: Inland Earth Sciences Corporation

Job Number: 590-15031-1

Login Number: 15031

List Source: Eurofins TestAmerica, Spokane

List Number: 1

Creator: O'Toole, Maria C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

Login Sample Receipt Checklist

Client: Inland Earth Sciences Corporation

Job Number: 590-15031-1

Login Number: 15031

List Number: 2

Creator: Rystrom, Joshua R

List Source: Eurofins TestAmerica, Denver

List Creation: 04/29/21 07:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Inland Earth Sciences Corporation

Job Number: 590-15031-1

Login Number: 15031

List Number: 3

Creator: Blankinship, Tom X

List Source: Eurofins TestAmerica, Seattle

List Creation: 04/30/21 04:26 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.3°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

